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Contributions to Comparative Philippine Grammar, II:[1]—
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THE NUMERALS.[2]

THE numerals of the Philippine languages,[3] with the excep-
tion of the first, fourth, and sixth of the cardinal series, are
derived from dissyllabic roots, and are thus, from a morpho-
logical standpoint, more closely allied to nouns than to pro-
nouns. They may be divided into the following classes,[4] viz.:

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[1] Part I, Introduction, General Features, Phonology, and Pronouns
appeared in the preceding volume of the Journal, pp. 317-396. For
addenda and corrigenda to Part I, see page 252, at the end of this article.

[2] For the principal grammars and dictionaries of the Philippine
Languages cf. I, p. 323, ft. nt. 2. For the Kalamian numerals cf.
pp. 211-224 of Retana's Archivo del Bibliofilo Filipino, II. Add Encina,
Gramatica bisaya-cebuana, Manila, 1885; Williams, Grammatische
Skizze der Ilocano-Sprache, München, 1904: Montano (see below, p. 253).

[3] In addition to the languages treated in Part I, viz., Tagalog, Bisayan
(Cebuan, Hiliguayna, Samaro-Leytean), Bikol, Pampangan, Panga-
sinan, Ilokan, Igorot (Nabaloi, Bontok), Ibanag, Batan, Magindanao,
Sulu, and Bagobo, the following are also included in this part, viz.,
Kalamian, Samal, Manobo, Tagakaolo, Bilan, and Atas (cf. Montano, op.
cit.). The numerals of the Harayan dialect of Bisayan, which was
included in Part I, are not given in Mentrida-Aparicio, hence it does not
appear in the above enumeration. As the numerals in Montano, op. cit.,
seem to be very incorrectly reported, they will be given separately
in an appendix to the Cardinals, pp. 226-228.

[4] Besides the classes of numerals given here, there are a number of
other derivatives, made with verbal particles and used as verbs, but
the treatment of these belongs rather to the discussion of the verb.

a) cardinals, answering the question 'how much?'
b) ordinals, answering the question 'in what order in a series?'
c) fractions, answering the question 'what part of?'
d) distributives, answering the questions 'how many at a time?' 'how many apiece?'
e) adverbs, answering the questions 'how often?' 'which time?'
f) restrictives, in which the idea of 'only' is added to the other numerals.

Cardinals.

For purposes of discussion the cardinals may be conveniently divided into the following classes, viz.:

Primary.

a) units from 'one' to 'ten.'
b) even tens from 'twenty' to 'ninety.'
c) even hundreds, thousands, etc.

Intermediate.

a) teens from 'eleven' to 'nineteen.'
b) numbers between even tens.
c) numbers between even hundreds, thousands, etc.

Primary Cardinals.

The units have the following forms in the various languages, viz.:

	1	2	3	4	5
Tag.[1]	isa	dalawa	tatlo	apat[2]	lima

[1] Noceda in his Tagalog dictionary, article *isain*, p. 159, mentions another series of the first ten numerals, viz., *isain, duwain, mampat, agyo, tondong, kala, manapit, saga, bulaid, toro*, which, he states, were used in ancient times. The first series, however, is the common property of all the languages of the Malayo-Polynesian family, so it is hardly possible that the second series should be the more ancient. Brandstetter, *Tagalen and Madagassen*, Luzern, 1902, p. 10, thinks that Noceda's statement rests on a misunderstanding, and that they represent a series of secret numbers or the numerals of another language; the former supposition is probably correct. It may be that some of them belong to one of the idioms of the Negritos, about which very little is known. The first two numerals of this series, *isain, duwain*, seem to be derivatives with the suffix *in* from *isa* of the other series, and **duwa* an older form of 'two' (cf. below, p. 204); the third, *mampat*, is based on *pat*, the root of *apat*, the fourth of the first series.

[2] The form *ipat* occurs in the adverbs, cf. below, p. 246.

	1	2	3	4	5
Bis. (Ceb.)	usa	duha, duduha[1]	tolo, totolo[1]	upat	lima, lilima[1]
Bis. (Hil.)	usa, isa	duha, daroa	tolo, tatlo	opat, apat	lima
Bis. (S.L.)	usa	duha, duduha[1]	tolo, totolo[1]	upat	lima
Bik.	saro	dua	tolo	apat	lima
Pamp.	isa, metong	adua	atlo	apat	lima
Pang.	isa, sakey	dua[2]	talo[3]	apat[4]	lima
Ilok.	isa, maisa	dua	tallo[3]	uppat	lima
Iban.	itte, tadday	due, dua	tallu	appat	lima
Igor. (Nab.)	saxei	chua	taddo	appat	dima
Igor. (Bon.)	isa	chuwa	tolo	ipat	lima
Bat.	asa[5][13]	dadua[6]	tatdo[13]	apat[xlvii]	dima[xlvii] dadima[6]
Kal.	tata, eta	doroa	tolo	epat	lima
Mag.	isa	dua	telu	apat, pat[6]	lima

[1] In Cebuan these reduplicated forms are made from the units with initial consonant; in Samaro-Leytean the same rule probably applies, although it is not stated and only 'two' and 'three' are given. In Samaro-Leytean these forms are used when the numerals form the predicate of a sentence, and are equivalent to verbal forms with prefixed *ma*, e. g., *maduha*. Zueco gives the following ambiguous distinction between reduplicated and unreduplicated forms: "Las unidades cuya inicial es consonante, duplican la primera silaba cuando especifican una cantidad. No la duplican, cuando la cuenta es abstracta." He also states, however, that the two forms may be used without distinction (cf. Zueco, p. 14).

[2] The numerals from 'two' to 'ten' are followed by *ra, ira* 'they' when they stand as predicate of a sentence, *ra* after a vowel, e. g., *dua ra, ira* after a consonant, e. g., *apat ira.*

[3] In the distributives *tatlo* also occurs (cf. below, p. 239).

[4] The form *epat* occurs in the distributives (cf. below, p. 239).

[5] With Batan forms the subscript Arabic numerals refer to the pages of the Batan Catechism, and the Roman numerals to the pages of the "Prologo" in Retana's *Archivo*, vol. II, on which the forms occur.

[6] Given by Porter, *A Primer and Vocabulary of the Moro Dialect* (*Magindanau*), Washington, 1903, p. 71.

	1	2	3	4	5
Sulu	isa, hambuk	dua	to	opat	lima
Bag.	sabbad	dua	tatlo	appat	lima

	6	7	8	9	10
Tag.	anim	pito	walo	siyam	sangpowo, polo[1]
Bis. (Ceb.)	unum	pito, pipito	walo	siam, sisiam	(na)polo
Bis. (Hil.)	unum, anum	pito	walo	siam	(na)polo, isa ka-polo[2]
Bis. (S. L.)	unom	pito	walo	siam	napolo
Bik.	anom	pito	walo	siam	sangpolo[3]
Pamp.	anam	pitu	walo	siam	apulo
Pang.	anem	pito	walo	siam	sampolo
Ilok.	innem, ennem	pito	walo	siam	polo, sanğa-polo,-pollo
Iban.	annam	pitu	walu	siam	mafulu
Igor. (Nab.)	annim	pitto	gualo	dsiam	sampulo
Igor. (Bon.)	inim	pito	walo	siam	simpoo
Bat.	anem[4]	pito,[4] papitu$_7$	wago[4]	siam[4]	pogo$_{xlv}$, asa-pogo$_5$, asa a pogo$_6$
Kal.	eñem[5]	pito	walo	siam	tampolok
Mag.	anem, nem[6]	pitu	walu	siau	sapulu
Sulu	ünom	peto	walu	siam	hangpoh
Bag.	annam	pitto	walo	sio	sapolo

[1] *Polo* is said to be used without *sang* when counting consecutively, cf. Totanes, *Arte de la lengua tagala*, Binondo, 1865, p. 103. This form is either dialectic or is borrowed from one of the adjacent languages.

[2] *Sampolo* is found also in the distributives (cf. below, p. 240).

[3] Following *sangpolo* in San Augustin is *de rarong polo*. Whether this indicates that *polo* is rarely used alone, or that there is another form *saro-ng polo*, as in the case of *laksa*, 'million,' is uncertain.

[4] Assumed on the basis of the ordinals on pp. 5 and 6 of the Catechism.

[5] So given in the Kalamian vocabulary (cf. above, p. 199, ft. nt. 2) p. 224 ; doubtless simply a mistake for *enem*.

[6] Given by Porter *op. cit.*, loc. cit., as *nŭm*, *ŭ* being probably used to represent the indistinct vowel which is given as *e* by Juanmarti.

The forms of 'one' differ from those of the other numerals in being derived from pronominal particles. They have for the most part been explained in Part I, pp. 344, 345. Add the following. Batan *asa* is probably the root particle *sa* which is found in the majority of the forms of 'one,' with a prefixed *a* probably identical with the *a* of Tagalog *ang*, just as the *i* of *isa* is identical with the *i* of Pampangan *ing*. Kalamian *tata*, *eta* are based on a root particle *ta* identical with the *sa* (cf. *katawa* 'husband, wife' = *ka+atawa* [Tag. *asawa*] and cf. also the change from *s* to *t* in Ibanag [I, p. 333]). *Tata* is a reduplicated form, *eta* is probably identical with *i-sa*. Pampangan *metong* is probably to be analyzed as *me* (=Ilok. *mai* in *maisa* [I, p. 331])+*to* (=dem. root part. *to* [I, p. 352])+ligature *ng*, which has become an integral part of the word as in Tagalog *ang* (I, p. 341 f.). If *metong* contains the demonstrative root particle *to*, it is not unlikely that the root particle *sa*, which is found in the majority of the forms of 'one,' is identical with the demonstrative particle *sa* of the Pangasinan definite article *sa* (I, p. 342).

Sulu *hambuk* is probably *hang-buk* with assimilation; for *hang* cf. below, p. 207; *buk* is probably numeral coefficient (cf. I, p. 345).

The remaining nine numerals are apparently derived from roots, dissyllabic except in the case of 'four' and 'six.' The fifth numeral is also the word for 'hand' in many of the languages. Here it is evident that the word for 'hand' with its five fingers has been taken to indicate 'five.' The original meaning of the other numeral roots does not appear.

The original Philippine form of 'two' seems to have been *dua* (*doa*) as in Bikol, Pangasinan, Ilokan, Ibanag, Magindanao, Sulu, and Bagobo. Ibanag *due*, like *itte*, contains the ligature *i*, viz. *dua+i* (cf. I, p. 345). Igorot *ch* is the regular phonetic representation of *d* (I, p. 333). In Bontok *chuwa*, a semi-vowel *w* has been developed out of *u*. In Bisayan *duha* a secondary *h* has been developed between the two vowels. In Pampangan the initial *a* of *adua* is, like that of *atlo*, 'three,' probably derived from the *a* of *apat* 'four;' 'two' and 'three' had probably become monosyllabic as **dwa* and **tlo*, and the *a* was prefixed in order to conform them to the prevailing dissyllabic type. The fact that 'six' is *anam* and 'ten' *apulo* may also have had some influence in bringing about this ana-

logical change.[1] Kalamian *doroa* and Cebuan and Samaro-Leytean *duduha* have reduplication[2] of the first syllable. In Hiliguayna *daroa* and Batan *dadua* the vowel of the reduplication is written *a* instead of *u*, *o*, and probably represents an unaccented indistinct vowel. Tagalog *dalawa* is difficult ; it may represent a reduplicated form of **dawa*, intervocalic *d* being irregularly changed to *l* instead of *r*, or it may be **dawa* with infixed particle *la*.[3] **Dawá* is probably a modification of *duwá*, derived by insertion of *w* from **dua*,[4] unaccented *u* being changed to *a* as in the reduplicated forms above.

The original form of ' three ' seems to have been a form *t-lo* with an indistinct vowel between the two consonants. This indistinct vowel appears as *o* in Bisayan, Bikol, Bontok, and Kalamian *tolo*, and Cebuan and Samaro-Leytean reduplicated *totolo*, as *a* in Pangasinan *talo*, Ilokan, Ibanag, *tallo, tallu*, Nabaloi *taddo*, and as *e* in Magindanao *telu*. In Nabaloi *l* appears as *d*

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[1] For analogical changes produced by the influence of consecutive numerals upon each other, cf. Osthoff u. Brugmann, *Morphologische Untersuchungen*, Leipzig, 1878, Th. 1, pp. 92–132; also my article, *Hebrew* חֲמִשָּׁה, חֲמִשִּׁים, JAOS., vol. xxvi, 1905, pp. 117–119.

[2] In the Philippine Languages reduplication at the beginning of a word, which is the only kind we are concerned with in this article, consists in the repetition of either one or two syllables. Ordinarily the final consonant of the syllable or combination of syllables which is to be reduplicated, does not appear in the reduplication, except when it is the final consonant of a word or root. Reduplication of one syllable may be called partial, reduplication of two syllables, full reduplication. The two are sometimes combined in the same word. Examples in Tagalog are, e. g.,

> susulat *from* sulat
> magiginbanal *from* maginbanal
> araw-araw " araw
> babalibaligtad " baligtad
> kakatakatawo " katawo

Sometimes, however, in partial reduplication the consonant after the vowel of the syllable to be reduplicated is repeated, even though it stands in the following syllable. This mode of reduplication is found chiefly in the languages of the Northern Group like Ilokan. Examples in Ilokan are, e. g.,

> balbalay *from* balay
> silsilid " silid.

[3] Cf. L. B. Wolfenson, *The infixes la, li, lo, in Tagalog*, JAOS., vol. xxvii, 1906, pp 142–146.

[4] Cf. the ordinal form *ikalua*, p. 230, below.

(I, p. 334). The doubling in Ilokan, Ibanag, and Nabaloi is phonetic (I, p. 336). Sulu ·*to* represents a contraction of *too* derived from *tolo* by loss of intervocalic *l* (I, p. 333 f.). In Pampangan *atlo* the initial *a* is to be explained like the *a* of *adua*; the indistinct vowel is syncopated. Tagalog, Hiliguayna, Bagobo *tatlo*, Batan *tatdo* (*d* for *l*, cf. I, p. 334) consist of the syncopated form *tlo* with a reduplicative syllable *ta*, *a* representing an indistinct, unaccented vowel.

The original form of 'four' seems to have been *pat*. This has been made dissyllabic by prefixing an articular particle *a* in Tagalog, Hiliguayna, Bikol, Pangasinan, Batan, and Magindanao; *u*, *o* in Bisayan, Ilokan, and Sulu; *i*, *e* in Bontok and Kalamian. The doubling in Ibanag, Nabaloi, and Bagobo *appat*, Ilokan *uppat*, is phonetic. Magindanao *pat* may be the original root, or it may be a shortened form due perhaps to the analogy of forms like *sapulupat* 'fourteen,' if the *a* is lost here phonetically (cf. below, p. 217).

The original form of 'five' was *lima*, as in all the languages except Nabaloi and Batan where *l* has been changed to *d*. Cebuan has the reduplicated form *lilima*, and Batan the form *dadima*, in which the vowel of the reduplication is *a*.

The original form of 'six' was probably *n-m* with an indistinct vowel between the two consonants. This form, like *pat* 'four,' was made dissyllabic by prefixing an articular particle, *a* in Tagalog, Hiliguayna, Bikol, Pampangan, Pangasinan, Ibanag, Nabaloi, Batan, Magindanao, and Bagobo; *u*, *o* in Bisayan, and Sulu (for *ü* cf. I, p. 332); *i*, *e* in Ilokan, Bontok, and Kalamian. In every case except in Ilokan the articular particle is the same as that used in 'four.' The indistinct vowel appears as *i* in Tagalog *anim*, Nabaloi *annim*, Bontok *inim*, as *e* in Ilokan *innem*, Pangasinan, Batan, Magindanao *anem*, Kalamian *eñem*, as *u*, *o* in Bisayan *unom*, *unum*, Hiliguayna and Bikol *anom*, *anum*, Sulu *ünom*, as *a* in Pampangan *anam*, Ibanag and Bagobo *annam*. The doubling in Ilokan, Ibanag, Nabaloi, and Bagobo is phonetic. Magindanao *nem* (*num*) is to be explained like *pat* 'four.'

The original form of 'seven' was *pito*, *pitu*, as in most of the languages. Phonetic doubling occurs in Nabaloi and Bagobo *pitto*. In Sulu *peto*, *i* is represented by *ē* (cf. I, p. 377). Reduplicated forms are Cebuan *pipito* and Batan *papitu*, in the latter of which the vowel of reduplication is *a*.

The original form of 'eight' was *walo, walu,* as in most of the languages. In Nabaloi *gualo,* initial *w* has become *gu* (I, p. 332), and in Batan *wago,* intervocalic *l* has become *g* (I, p. 334).

The original form of 'nine' was *siam,* as in most of the languages. Cebuan has the reduplicated form *sisiam.* In Tagalog *siyam* a semi-vowel *y* has been developed out of the *i.* In Nabaloi *dsiam* the initial *s* has suffered some phonetic modification; *ds* probably represents the affricative *dz.* In Magindanao *siau* and Bagobo *sio* the end of the word has been modified after the analogy of the adjacent numerals, in Magindanao *walu, sapulu,* in Bagobo *walo, sapolo*; *sio* may be a contraction of **siau.*

'Ten' consists sometimes of the simple root, but usually of a combination of root and prefix. The original root of 'ten' was *polo, pulu, pulo.* This is found unchanged in Bisayan, Bikol, Pampangan, Pangasinan, Ilokan, Nabaloi, Magindanao, and Bagobo. Kalamian *polok* has added a final *k* of uncertain origin. Ilokan may have doubling of the *l,* viz. *pollo.* In Ibanag *fulu, p* before *u* has become *f* (I, p. 332). In Batan *pogo* intervocalic *l* has become *g.* In Tagalog *powo,* Bontok *poo,* and Sulu *poh* intervocalic *l* has been elided (cf. I, p.333 f.). In Tagalog a secondary *w* has been developed out of the *o* vowels; the *h* in Sulu may be simply graphic. Root forms seem to be used only in Tagalog, Bisayan, Ilokan, Batan, and perhaps in Bikol (cf. p. 202, ft. nt. 3), and then probably only when counting consecutively.[1] Usually the root has a prefix meaning 'one, a.' This prefix is *sa,* the root particle of 'one,' without ligature in Magindanao and Bagobo *sapulu, sapolo*; *sa* followed by ligature in Tagalog and Bikol *sa-ng-polo,* Pangasinan and Nabaloi *sa-m-polo,*[2] *sa-m-pulo,* .Ilokan *sa-ñya-polo,* Kalamian *ta-m-polo-k.* Bontok *simpoo* may possibly be modified from *sa-m-poo* after the analogy of *siam* 'nine,' but as *sin*

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[1] This is true at least of Tagalog (cf above, p. 202, ft. nt. 1). It is possible that the root form is also used in this way in Pampangan, cf. the statement "nota que isa 1. y *apolo* 10 solo se dicen numerando simplemente, mas para individuarse usa de *metong,* uno, y *Apolo,* diez." Here the first *apolo* is probably a mistake for *polo,* otherwise this statement is without meaning with regard to 'ten.'

[2] The ligature *n* or *ng* is often assimilated to *m* before a labial.

occurs as prefix also in the other powers of ten it is more likely
that it is based on the pronominal particle *si*.   In Hiliguayna
isa-ka-polo and Batan *asa pogo*, *asa a pogo*, and perhaps in
Bikol (cf. p. 202, ft. nt. 3), the full numeral 'one' is prefixed to
the root; in Hiliguayna the root takes the prefix *ka* according
to rule;[1] in Batan the ligature *a* may be used or not.   *Hang* in
Sulu *hangpoh* is probably to be analyzed as *a-ng* morphologi-
cally identical with Tagalog article *ang*, but having an indefi-
nite meaning 'one, a,'[2] with a secondary initial *h* (I, p. 336).
Pampangan *apulo* probably contains the same particle *a* without
ligature.   Bisayan has the prefix *na*, Ibanag the prefix *ma*,
viz., *na-polo*, *ma-fulu*, which are probably connected in some
way with the identical verbal prefixes.

The even tens have the following forms in the various lan-
guages, viz.:

	20	30	40	50
Tag.	dalawa-ng powo	tatlo-ng powo	apat na powo	lima-ng powo
Bis. (Ceb.)	kuluhaan	katloan	kaupatan	kalim-an
Bis. (Hil).	kaluhaan, duha ka-polo	katloan, tolo ka-polo, tatlo ka-polo	kap-atan, apat ka-polo	kalim-an, lima ka-polo
Bis. (S. L.)	karuhaan	katloan	kapatan	kalim-an
Bik.	dua-ng polo	tolo-ng polo	apat na polo	lima-ng polo[3]
Pamp.	adua-ng polo	atlo-ng polo[3]	apat a polo	lima-ng polo[3]
Pang.	dua-n polo	talo-n polo	apat a polo	lima-n polo
Ilok.[4]	dua pol(l)o	tallo pol(l)o	uppat a pol(l)o	lima pol(l)o
Iban.	dua fulu	tallu fulu	appat a fulu	lima fulu
Igor. (Nab.)	chua pulo	taddo pulo	appat pulo	dima pulo
Igor. (Bon.)	chuwa-n poo	tolo-n poo	ipat poo	lima-n poo

[1] Cf. my paper *Differences between Tagalog and Bisayan*, JAOS., vol. xxv, 1904, p. 167.
[2] So in Arabic and Mineo-Sabean, the nunnation and mimmation respectively, though originally emphatic and definite, have acquired an indefinite meaning, e. g., Arabic بيتٌ *baitu*ⁿ, Mineo-Sabean بيتم *bit-m* 'a house'; cf. Wright-De Goeje, *A Grammar of the Arabic Language*, Cambridge, 1896, vol. I, §§ 8, 308; Hommel, *Südarabische Chrestomathie*, München, 1893, p. 36, § 57.
[3] Not given, but practically certain.
[4] For another series of 'tens' cf. the intermediate numbers, p. 222 below.

	20	30	40	50
Bat.	?[1]	?	?	dima a pogo[xliv]
Kal.	doroa-ng polok	tolo-ng polok	?	?
Mag.	dua pulu	telu pulu	apat pulu	lima pulu
Sulu	kauhan	katluan	kaopatan	kaiman
Bag.	dua polo	tatlo polo	appat polo	lima polo

	60	70	80	90
Tag.	anim na powo	pito-ng powo	walo-ng powo	siyam na powo
Bis. (Ceb.)	kanuman	kapitoan	kawaloan	kasiaman
Bis. (Hil.)	kan-uman, anum ka-polo	kapitoan, pito ka-polo	kawaloan, walo ka-polo	kasiaman, siam ka-polo
Bis. (S.L.)	kaun-man	kapitoan	kawaloan	kasiaman
Bik.	anom na polo[2]	pito-ng polo[2]	walo-ng polo[2]	siam na polo
Pamp.	anam a polo[2]	pito-ng polo[2]	walo-ng polo[2]	siam a polo
Pang.	anem a polo	pito-n polo	walo-n polo	siam a polo
Ilok.	innem / ennem } a pol(l)o	pito pol(l)o	walo pol(l)o	siam a pol(l)o
Iban.	annamma fulu	pitu fulu	walu fulu	siamma fulu
Igor. (Nab.)	annim pulo	pitto pulo	gualo pulo	dsiam pulo
Igor. (Bon.)	inim poo	pito-n poo	walo-n poo	siam ay poo
Sulu	kaünoman	kapetoan	kawaluan	kasiaman
Bag.	annam polo	pitto polo	walo polo	sio polo

These tens are made in one of two ways, viz., *a*) by multiplication, that is by placing the unit before the root of 'ten,' the ligature being sometimes used to join the two, sometimes not; *b*) by deriving abstracts from the units by prefixing *ka* and suffixing *an*.

The first formation is found in all the languages except Cebuan, Samaro-Leytean, and Sulu, the second in Bisayan in general and Sulu. Both formations occur in Hiliguayna. In the first formation the ligature is regularly used in Tagalog, Bikol, Pampangan, Pangasinan, and Kalamian (?). It is regularly omitted in Nabaloi, Magindanao, and Bagobo. In Ilokan

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[1] A question mark indicates that the form is not given in the work or works referred to If a language is omitted entirely it indicates the same thing.

[2] Not given, but practically certain.

and Ibanag the ligature is used only after units ending in a con-
sonant; in Ibanag the final *m* of *anam* and *siam* is doubled
before the ligature *a*. In Bontok it is found after all units
ending in a vowel,[1] but is apparently optional after one ending
in a consonant. In Batan, to judge from the forms of 'ten' *asa
pogo* and *asa a pogo*, the ligature seems to be optional, at least
after a vowel. In Hiliguayna no ligature is used, but 'ten'
takes the prefix *ka* according to rule.

In the second formation, the following are made regularly
from the units, 'seventy,' 'eighty,' and 'ninety' in all the
languages; 'forty' in Cebuan and Sulu; and 'sixty' in Sulu.
In 'twenty,' Samaro-Leytean *ka-ruha-an* is derived from
ka-duha-an by change of intervocalic *d* to *r* (I, p. 334). In
Cebuan and Hiliguayna a similar form *ka-ruha-an* has been
still further modified to *ka-luha-an* by change of *r* to *l* (I, pp.
333, 382 f.). In Sulu the development is probably as follows:
an original *ka-dua-an* > *ka-duan* with contraction, > *ka-du-
han* with development of secondary *h* as in Bisayan *duha*, >
ka-ruhan with change of intervocalic *d* to *r*, > *ka-luhan* with
change of *r* to *l*, > *ka-uhan* with loss of intervocalic *l* (I, p. 333 f.).
'Thirty' is regularly made on the syncopated basis *tlo*, *tlu*.
'Forty' in Hiliguayna and Samaro-Leytean is made either from
the root *pat* or from a base *apat*, which however does not occur
in Samaro-Leytean, the initial vowel *a* coalescing with the *a* of
the prefix. Hiliguayna has developed a glottal catch after the
p, viz., *kap-atan*. 'Fifty' in Bisayan syncopates the final
a of the unit and develops a glottal catch before the suffix,
viz., *kalim-an*. In Sulu final *a* of the unit is contracted with
the *a* of the suffix and the intervocalic *l* is elided. 'Sixty'
in Cebuan and Hiliguayna is made either from the root *num* or
from a base *anum*, which however does not occur in Cebuan,
the initial *a* coalescing with the prefix as in 'forty,' developing
a glottal catch in Hiliguayna *kan-uman*. Samaro-Leytean
kaunman may represent a metathesis of *kanuman* or it may be
made from *unum*, with syncope of the second *u*.

The powers of 'ten' have the following forms in the various
languages, viz.:

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[1] Forms like *chuwa lifo* 'two thousand' and *tolo lifo* 'three thousand'
in the compound numerals indicate the possibility of the omission of
the ligature after a vowel.

	100	1,000	10,000	100,000	1,000,000
Tag.	sangdaan, isa-ng daan	sanglibo, isa-ng libo	sanglaksa, isa-ng laksa	sangyota, isa-ng yota	sangpowo-ng yota sanggatos sangangawangaw
Bis. (Ceb.)	usa ka-gatos	usa ka-libo	napolo ka-libo	usa ka-gatos ka-libo	napolo ka-gatus ka-libo
Bis. (Hil.)	usa } ka-gatos isa }	usa } ka-libo isa }	usa } ka-laksa isa }	napolo ka-laksa, usa } ka-gatos ka- isa } libo	usa } { ka-lamak isa } { ka-gatos ka- laksa
Bis. (S. L.)	usa ka-gatos	usa ka-yokot	?	?	usa ka-ribo
Bik.	sanggatos	sangribo	?	?	{ sanglaksa { saro-ng laksa
Pamp.	dinalan	libo	laksa	gatus	sangyota
Pang.	sanlasus	sanlibo[1]	sanlaksa	sampolo-n laksa	sanlasus laksa, libo-y libo
Ilok.	sangagasut	sangaribu	sangalaksa	sangapollo a laksa	sangariuriu
Iban.	magatut	maribu	?[2]	magatut jibu	mafulu gatut jibu, mariburibu
Igor. (Nab.)	sandasus	sandibo	?	?	?
Igor. (Bon.)	sinlasot, lasot	sinlifo	sinpoo-y lifo	?	?
Kal.	agket[3]	?	?	?	?
Mag.	magatus	sangibu	salaksa	sajuta	sakati
Sulu	anggatus, angratus	angibu	salaksa	hangpoh laksa	angratus laksa
Bag.	sabbad gatos	sabbad mararan	sabbad maribo	sabbad gatos mararan	sabbad gatos maribo

[1] The most common spelling of this word is *livo*. This may represent a phonetic change of *bu* or *bo* to *vu* or *vo* as in Ibanag (I, p. 382), or it may be simply due to the confusion of *b* and *v* in Spanish.

[2] Probably *mafulu ribu.*

[3] *Archivo*, vol. ii, p. 222.

Still higher numerals are given in some of the languages,[1] viz. :

	10,000,000	100,000,000
Tag.	sangkati	
Pang.	sanlibo-n laksa	nilaksalaksa
Mag.	sakedi	sapandang

These numerals have regularly, except in the case of Pampangan and Kalamian (?), a prefix similar to that used with 'ten.'

The forms of 'one hundred,' omitting Kalamian *agket*, which stands alone, are based on two roots. One is *dalan*, which occurs in Tagalog as *daan* with loss of intervocalic *l*, in Pampangan as *d-in-alan* with infix *in*, probably connected with the nominal infix *in* which means 'like, similar'; *dalan* also means road in many of the languages, and there. may be some connection between the two. The other appears in various forms, viz.: as *gatus*, *gatos* in Bisayan, Bikol, Magindanao, Sulu, and Bagobo, as *ratus* in Sulu, as *gasut* in Ilokan, *gatut* in Ibanag, as *lasus* in Pangasinan, *lasot* in Bontok, and *dasus* in Nabaloi. The original form seems to have been *ratus*, as in Malay and Javanese.[2] This would explain the initial *l* of the Pangasinan and Bontok forms, and the *d* of the Nabaloi form (cf. I, pp. 333, 334). The initial *g* of the other forms may represent an irregular change of *r* similar to that in Ibanag, Pangasinan, and Nabaloi *piga* (Sam.-Ley. *pira*), cf. I, pp. 334, 335. Sulu *ratus* may be. simply borrowed from Malay. In Ibanag final *s* has become *t* and then glottal catch (I, pp. 333, 336). In Ilokan and Bontok there is a metathesis of the *s* and *t*. The Pangasinan and Nabaloi forms *lasus*, *dasus* are probably a blend of two forms, one **latus*, **datus*, the regular phonetic representative of original **ratus*, the other **lasut*, **dasut*, with metathesis of *s* and *t*, as in Ilokan and Bontok.

The forms of 'thousand' are for the most part based on a root *ribu* identical with Malay *ribu*. This root occurs as *ribu*, *ribo* in Bikol, Ilokan, and Ibanag; with change of *r* to *l* as *libo* in Tagalog, Bisayan (except Samaro-Leytean), Pampangan,

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[1] In Pampangan *katakata* means a number beyond count. The root *kata* is probably the same as *kati* in Magindanao and Tagalog.

[2] Cf. Marre, *Des Noms de Nombres en usage dans Madagascar, aux Philippines, dans la Malaisie et dans la Polynésie*, Torino, 1899, p. 13.

Pangasinan, as *lifo* with change of *b* to *f* in Bontok (I, p. 332);
with change of *r* to *d* as *dibo* in Nabaloi. Magindanao *sañgibu*,
Sulu *angibu* are probably derived by assimilation respectively
from **sangribu* and **anglibu*. In Magindanao, however, *ñgibu*
is treated as root, e. g., *dua ñgibu* 'two thousand.' In
Bagobo the root is *-raran*, doubtless identical with *dalan*
'hundred,' both intervocalic *d* and *l* being changed to *r*. In
Samaro-Leytean the root is *yokot*, which has no analogon.

The forms of 'ten thousand' are made for the most part from
laksa, a loan work from Sanskrit (=*laksá* 'hundred thousand')
though Bagobo employs *ribo*, and Cebuan and Bontok expresses
it by multiplication of 'thousand' as in English.

'Hundred thousand' is expressed variously; in Tagalog and
Magindanao by a root *yuta*, *yota*, a loan word from Sanskrit
(=*ayúta* 'ten thousand'); in Pampangan by *gatus*, ordinarily
employed for 'one hundred.' It is expressed by multiplication
as 'ten ten-thousands,' in Cebuan, Hiliguayna, Pangasinan,
Ilokan, and Sulu, and as 'a hundred thousands' in Hiliguayna,
Ibanag, and Bagobo. In Ibanag, *ribu* has become *jibu* (pro-
nounced *žibu*) after *magatut* (pronounced *magatu*' with glottal
catch); as *d* regularly becomes *j* before *i*, *jibu* probably repre-
sents a form **dibu* which may have been derived from *ribu* by
partial assimilation of the *r* to the preceding *t* of *magatut*,
before that *t* was changed to the glottal catch.

'One million' is expressed by the following roots, viz.: in
Tagalog by *gatos* (usually employed for 'one hundred') or
añgawañgaw; in Hiliguayna by *lamak;* in Samaro-Leytean by
ribu (usually employed for 'thousand'); in Ibanag by *riburibu*
with reduplication; in Bikol by *laksa* (usually employed for
'ten thousand'); in Pampangan by *yota* (also employed for
'hundred thousand'), in Ilokan by *riuriu*, in Magindanao by
kati, probably a loan word from Sanskrit (= *kóti* 'ten million').
It is expressed by multiplication, as 'ten hundred-thousands' in
Tagalog, Cebuan, and Ibanag; as 'a hundred ten-thousands' in
Hiliguayna, Pangasinan, Sulu, and Bagobo; and as 'a thousand
thousands' in Pangasinan, and perhaps in Ibanog. In Tagalog
añgawañgaw, Ilokan *riuriu*, and perhaps in Ibanag *riburibu*,
the reduplication emphasizes the greatness of the number.[1]

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[1] Cf. also Pampangan *katakata* 'a number beyond count.'

'Ten million' is expressed in Pangasinan as 'a thousand ten-thousands,' in Tagalog by *kati* (= Mag. *kati*), and in Magindanao by the root *kedi*, perhaps a modification of *kati* (cf. Malay and Javanese *sa-keti* 'hundred thousand').

'One hundred million' is expressed in Pangasinan by 'ten-thousand ten-thousands,' the compound taking a prefix *ni*, in Magindanao by the root *pandang*. This prefix *ni* may be the Pangasinan prefix *ni*, which is used instead of the infix-prefix *in* of similarity before *l* and *y*, and is thus the same as the *in* of Pampangan *dinalan*, or it may be the Sanskrit prefix *ni* which is used in that language with certain higher numerals, viz.:

<blockquote>
niyuta   '100,000.'
nyarbuda '100,000,000.'
nikharva '100,000,000,000.''
</blockquote>

The prefixes employed with these roots are in general the same as those employed with 'ten'; so throughout in Ilokan, Ibanag, and Igorot. Tagalog has in addition to the *sang* which is used with 'ten' a fuller form *isa-ng*, i. e., numeral 'one' + ligature. Bisayan has the numeral 'one' followed by the root with prefixed *ka* (a formation found also in 'ten' in Hiliguayna) except in 'ten thousand' in Hiliguayna, which may be expressed as 'ten ten-thousands' as well as by 'one hundred thousand.' Bikol has in 'million' in addition to *sang*, *saro-ng*, i. e., 'one' + ligature. Pangasinan has *san* or *sam* identical with the prefix of 'ten' except in 'ten million,' where a prefix *ni* is used. In Magindanao all numerals take *sa* like 'ten' except 'one hundred,' which has *ma* like Ibanag. Sulu has *ang*, probably a more original form of the *hang* of 'ten,' except in 'ten thousand,' which has *sa* like Magindanao, and 'one hundred thousand,' which is expressed by 'ten ten-thousands.' Bagobo has *sabbad* 'one' before the root of 'hundred,' and before the root with additional prefix *ma* in the higher numerals. Pampangan has the infix *in* in 'one hundred,' and the prefix *sang*, identical with Tagalog and Bikol *sang*, in 'one million.' In Tagalog, Bisayan, Bikol and Bagobo, as has been seen, the full form of the numeral 'one' may be used as prefix. Forms without prefix (or infix) are Pampangan *libo*,

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[1] Cf. Whitney, *A Sanskrit Grammar*, 3d ed., Leipzig and Boston, 1896, pp. 177, 178.

laksa, gatus, Pangasinan *libo'y libo,* Bontok *lasot,* and Kalamian *agket*(?).

Generally speaking, even multiples of these numerals are formed by multiplication, the units being placed before the numeral, which regularly loses its prefix; the ligature is used as in the formation of the tens. The prefix is retained in Pampangan *sangyota* 'million,' and in Sulu in the forms with *ang.* In Pampangan the infix *in* of *dinalan* is dropped, e. g.:

<div align="center">200</div>

Tag.	dalawa-ng daan	
Bis.	duha ka-gatos	
Bik.	dua-ng gatos[1]	
Pamp.	adua-ng dalan	apat a sangyota '4,000,000'
Pang.	dua-n lasus	
Ilok.	dua gasut	
Iban.	dua gatut	
Igor. (Nab).	chua dasus	
Igor. (Bon.)	chuwa-n lasot	
Mag.	dua gatus	dua nğibu '2,000'
Sulu	dua ang-ratus	dua laksa '20,000'
Bag.[2]	dua gatos	

Ilokan also has forms made on the basis of the hundred, thousand, etc., toward which the count is proceeding, by means of the prefix *kanika,* e. g., *kanikatlo gasut* 'two hundred,' cf. below, p. 222.

In those numerals which consist of a compound numeral with a prefix the same rules in general apply, e. g.,

<div align="center">Iban.   dua gatut jibu '200,000.'[3]</div>

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[1] walo-ng gatos '800' is the only 'hundred' given, but the others are practically certain.

[2] The derivatives of the higher numerals, which are not given, are probably e. g.,

<div align="center">dua mararan '2,000.'
dua maribo '20,000.'</div>

with retention of the prefix *ma,* cf. '100,000' and '1,000,000.'

[3] So in all probability, though the forms are not given,

Tag.	dalawa-ng powo-ng yota '2,000,000.'
Hil.	dua ka-gatos ka-libo '200,000.'
	dua ka-gatos ka-laksa '2,000,000.'

The Cebuan compound numerals beginning with *napolo* 'ten' substitute the other tens for *napolo*,[1] e. g.,

> kaluhaan ka-libo '20,000.'
> katloan ka-libo '30,000.'

The forms without prefixes take the units before them just as in the case of 'ten.'[2]

A number of these higher numerals are derived from Sanskrit, so *laksa*, *yuta*, and probably *kati* (*kata*,[3] *keti*?). The prefix *ni* of Pangasinan *nilaksalaksa* is perhaps also borrowed from Sanskrit.[4] The idea that *ribu* 'thousand' is of Semitic origin, cf. Hebrew רֹבֹ 'ten thousand,' is clearly untenable. It does not occur in Arabic, which is the only Semitic language with which these languages have come in contact.

As is often the case with the higher numerals in many languages, these numerals are frequently confused in the Philippine languages. The root *dalan* is used for 'one hundred' in Tagalog and Pampangan, but for 'one thousand' in Bagobo. *Ratos* is used for 'one hundred' in most of the languages, but in Pampangan it is used for 'one hundred thousand,' in Tagalog as one of the words for 'million.' *Ribo, libo* is the regular root of 'one thousand' in most of the languages, but in Samaro-Leytean it is used for 'million,' in Bagabo for 'ten thousand.'

Pang.	dua-n polo-n laksa '200,000.'
	dua-n lasus laksa '2,000,000.'
	dua-n libo-n laksa '20,000,000.'
Ilok.	dua pollo a laksa '200,000.'
	dua riuriu '2,000,000.'
Iban.	dua fulu gatut jibu '2,000,000.'
Igor. (Bon.)	chuwa-n poo-y lifo '20,000.'
Sulu	dua ang-ratus laksa '2,000,000.'

What the derivatives of Ibanag *mariburibu* 'one million' and Pangasinan *nilaksalaksa* 'one hundred million' are, if any are formed, is uncertain.

[1] The derivatives of Hiliguayna *napolo ka-laksa*, Sulu *hangpoh laksa*, are probably made in a similar fashion.

[2] No examples happen to occur, but the following are without doubt correct, at least in the case of Pampangan, e. g.,

Pamp.	adua-ng libo '2,000.'
	adua-ng laksa '20,000.'
	adua-ng gatus '200,000.'
Pang.	dua-n libo-y libo '2,000,000.'

[3] In Pampangan *katakata* 'a number beyond count.'

[4] Cf. Whitney, *op. cit.*, p. 177.

Laksa, although meaning 'hundred thousand' in Sanskrit, is the regular root of 'ten thousand,' but in Bikol it is used for 'million.' *Yota*, although meaning 'ten thousand' in Sanskrit, is the root of 'one hundred thousand' in Tagalog and Magindanao, and of 'million' in Pampangan.[1]

Intermediate Cardinals.

The first intermediate number between 'ten' and 'twenty,' viz., 'eleven,' is expressed as follows in the various languages, viz. :

Tag.	labi-ng isa
Bis. (Ceb.)	napolo ug usa
Bis. (Hil.)	napolo kag $\left\{\begin{array}{l}\text{usa}\\\text{isa}\end{array}\right.$
Bis. (S. L.)	napolo kag usa
Bik.	kagsaro, sangpolo meysaro
Pamp.	labi-n metong
Pang.	labi-n sakey
Ilok.	sañgapol(l)o ket maisa
	kanikadua pol(l)o $\left\{\begin{array}{l}\text{ket}\\\text{-t}\end{array}\right\}$ maisa
Iban.	karattadday[2]
Igor. (Nab.)	sawal ne saxei
Igor. (Bon.)	simpoo ya isa
Bat.	asa sicharuana a pogo$_{xlvii}$
Kal.	tampolok mai tata
Mag.	sapulu isa, sapulu ngu isa
Sulu	hangpoh tug isa
Bag.	sapolo sabbad

The other teens may be formed from these by substituting the other units for 'one,' e. g., Tag. *labi-ng dalawa*, etc.[3]

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[1] In Malay and Javanese the roots *laksa*, *keti*, and *yuta* are used respectively for 'ten thousand,' 'hundred thousand,' and 'million.' Cf. Seidel, *Practische Grammatik der Malayischen Sprache* (Hartlebens Verlag), p. 64 ; Bohatta, *Prak. Gram. d. Javan. Sp.* (Hartl. v.), p. 49.

[2] The statement in De Cuevas that *minikaruafulu* means 'ten and something more but less than twenty' seems to indicate the possibility of teens like *minikaruafulu tu tadday*, etc., cf. below, p. 222.

[3] In Nabaloi, however, the teens are expressed in several other ways, viz.: a) by addition in compound numerals and in the distributive numerals, e. g., *sampulo tan saxei*; b) without the genitive sign in adverbs and multiplicatives, e. g., *sawal saxei*. The multiplicatives from 'three' upward are made by placing the cardinal before *tope* 'double.' The *ni* which is found in the ordinals, e. g., *sawal ni saxei*, is probably simply a graphic variant of *ne*.

In Ibanag the element that is prefixed to the unit is *kara*, after which an initial consonant, except *w*, is doubled as above, while an initial *a* coalesces with the final *a* of the prefix. The remaining teens are, therefore, *karaddua, karattallu, karappat, karallima, karannam, karappitu, karawalu, karassiam.*

In Magindanao the initial *a* of the units *apat* and *anem* is elided after *sapulu*, or these forms are based on the original monosyllabic roots *pat* and *nem*, viz., *sapulu-pat, sapulu-nem.*

These forms fall into three classes, viz.: a) those made by simple addition of ten and unit, with or without conjunctive word; b) those in which ten is not expressed, but the unit is accompanied by a word or words meaning 'over,' 'above,' or the like; c) those in which the unit is accompanied by a deriva- tive of the next higher ten, viz., 'twenty.'

To the first class belong the forms in the following languages, the connective being indicated by the words in parenthesis, viz.: connected by conjunction 'and,' Bisayan (*ug, kag*), Ilokan (*ket*), Bontok (*ya*), Magindanao (*ngu*); connected by a particle meaning 'having,' Bikol (*may*), Kalamian (*mai*), and Sulu (*tug*); without connective, Magindanao and Bagobo. Magin- danao has forms both with and without connective.

To the second class belong the forms in Tagalog, Pampan- gan, Pangasinan, Ibanag and Nabaloi, and Bikol forms with pre- fixed *kag*. In all these forms 'ten' is understood. In Tagalog, Pampangan and Pangasinan the unit is modified by a preceding element *labi* 'overplus,' the two being joined by the ligature; the meaning of the 'teens' being thus 'a one overplus,' 'a two- overplus,' etc. In Nabaloi, *sawal* has probably a meaning simi- lar to *labi*, but it governs the unit in the genitive, the teens meaning thus 'an overplus of one,' 'an overplus of two,' etc. In certain derivatives (cf. p. 216, ft. nt. 3) the genitive sign is omitted, probably after the analogy of the numbers intermedi- ate between the other tens, e. g., *chua pulo saxei* 'twenty- one,' etc. In Ibanag the prefix *kara* is perhaps to be analyzed as preposition *ka* 'to' + *da* pronoun of the third person plural; the teens meaning thus 'one, two, etc., to (in addition to) them (i. e., to the ten numbers that have preceded).' In Bikol the prefix *kag* seems to be the conjunction 'and,' the teens thus meaning 'and one,' 'and two,' 'ten' being understood before them.

To the third class belong the forms like Ilokan *kanikadua-pollo ket* (or *-t*) *maisa*, and Batan *asa sicharuana a pogo*; for Ibanag, cf. above, p. 216, ft. nt. 2. *kanikaduapollo* and *sicharuana a pogo* are both based on ordinal forms. Batan *sicha* is probably identical with the Pampangan fractional prefix *sika* (cf. below, p. 235); Ilokan *kanika* is the same as the prefix of the numbers intermediate between the higher numerals (cf. below, p. 219). These combinations mean 'the twenty or second-ten one, two, etc.' In Ilokan the *t* is without doubt the original connective, being probably derived from *ti*, the genitive of the article. The connective *ket* means 'and' and is probably due to confusion with the other series of 'teens' like *sanga polo ket maisa*, etc.

The first intermediate number above 'twenty,' viz., 'twenty-one' is expressed as follows in the various languages, viz.:

Tag.	dalawa-ng $\begin{cases} \text{powo at isa} \\ \text{powo't isa} \end{cases}$
Bis. (Ceb.)	kaluhaan ug usa
Bis. (Hil.)	kaluhaan $\begin{cases} \\ \end{cases} \begin{cases} \\ \end{cases}$ kag usa
	duha ka-polo $\begin{cases} \\ \end{cases} \begin{cases} \\ \end{cases}$ kag isa
	kaluhaan kag may $\begin{cases} \text{usa} \\ \text{isa} \end{cases}$
Bis. (S. L.)	karuhaan kag usa
Bik.	dua-ng polo mey saro
Pamp.	adua-ng polo ampon metong
Pang.	dua-n polo tan sakey[1]
Ilok.	dua pol(l)o ket maisa
Iban.	duafulu tadday
Igor. (Nab.)	chua pulo saxei
Igor. (Bon.)	chua-n poo ya isa
Mag.[2]	duapulu ngu isa
Sulu	kauhan tug isa

The first intermediate numbers above the other tens may be obtained by substituting the other tens for 'twenty,' e. g., Tag. *tatlo-ng powo at ('t) isa* 'thirty-one,' etc. The other intermediate numbers between the various tens may be obtained by

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[1] Not given but practically certain.

[2] These forms are given only by Porter, who employs the conjunction also in the teens, e. g., *sapulu ngu isa* 'eleven.' Judging from the forms of the teens given by Juanmarti, it is possible that the earlier forms heard by him were without conjunction, viz., *duapulu isa*, etc.

substituting the other units for 'one' in these first intermediate numbers, e. g., Tag. *dalawa-ng powo at* (*'t*) *dalawa* 'twenty-two,' *tatlo-ng powo at* (*'t*) *tatlo* 'thirty-three,' etc.

These intermediate numbers are regularly made by addition of tens and units, the tens preceding. The two are juxtaposed without connective in Ibanag and Nabaloi, and perhaps also in Magindanao (cf. p. 218, ft. nt. 2). In the other languages one or more connectives meaning either 'and' or 'having' are employed as follows, the word in parenthesis indicating the connective, viz.: 'and' in Tagalog (*at*, *'t*), Bisayan (*ug*, *kag*), Pampangan (*ampon*), Pangasinan (*tan*), Ilokan (*ket*), Bontok (*ya*), Magindanao (*ngu*); 'having' in Bikol (*may*) and Sulu (*tug*). In Hiliguayna forms like *kaluhaan kag may usa* both kinds of connectives are used together.

Besides the forms of the numbers intermediate between the tens given above, which are the forms in common use, accounts of another and more original system of forming these numerals have been preserved in a number of the grammars, and in fact this system seems to be still in use in some sections alongside of the common one. These intermediate numerals consist of three parts, viz., the units, which stands last; a preceding modifier based on the ten toward which the count is proceeding; and a joining element between them. The modifier is formed in Pangasinan, Ilokan, and Ibanag by prefixing certain elements to the ten toward which the count is proceeding: in Pangasinan *mika*, in Ilokan *kanika*, in Ibanag *minika*.

The following examples of these forms occur for the intermediate numerals between 'twenty' and 'ninety,' viz.:

Pang.	*Ilok.*	*Iban.*
mika-tlo-n polo	kanika-tlo polo[1]	minika-tallufulu[2]
mikapat a polo[2]	kanikapat polo	
	kanika-lima polo	minika-limafulu[2]
	kanikanem a polo	

[1] The *l* of *polo* is apparently not doubled in these forms.

[2] These forms are assumed on the basis of general analogy and the following forms containing a modifier made from the same unit, viz.,

mikapat na poted—'three and a fraction.'
mikapito-y binting—'six *salapis* (4 reals), and a *binting* (2 reals).'
mikawalo-y binting—'seven *salapis* and a *binting*.'
minikatallu gatut—'over two hundred.'
minikalima ribu—'over four thousand.'

mika-pito-n polo[1]   kanika-pito polo
mika-walo-n polo[1]   kanika-walo pclo
                         kanika-siam a polo

In Tagalog, Pampangan, and Nabaloi the modifier is formed
by prefixing respectively *meyka, meka,* and *ka* to the unit indi-
cating the number of the ten towards which the count is pro-
ceeding, the word for 'ten' being omitted.   The following
examples occur for the intermediate numerals as above, viz. :

Tag.	*Pamp.*	*Igor. (Nab.)*
meyka-tlo	me-katlo	ka-ddo
meykapat	me-kapat	ka-appat
meyka-lima	me-kalima	
meykanim		
meyka-pito		
meyka-walo		
meyka-siyam		

In Hiliguayna the modifier is apparently made by prefixing
hin to the ten towards which the count is proceeding.   The
following examples occur for the intermediate numbers, as
above, viz. :

hiñgatloan < hin + katloan[2]
hiñgap-atan < hin + kap-atan
hiñgalim-an < hin + kalim-an

In the numbers intermediate between 'ninety' and 'one
hundred,' the modifier is made by prefixing the proper particle
to the word for 'hundred,' the ten towards which the count is
proceeding.   'Hundred' occurs in the root form except in Pam-
pangan,[3] viz. :

Tag.	meyka-raan
Pamp.	meka-dinalan
Pang.	mika-lasus[4]
Ilok.	kanika-gasut
Iban.	minika-gatut[4]

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[1] See preceding page, note 2.
[2] In most of the Philippine languages the combination of *n* + a gut-
tural becomes by reciprocal assimilation *nğnğ* and then *nğ* by simplifica-
tion of the doubling, as here.
[3] The Hiliguayna form is not given.
[4] Not certain but probably the proper form.

While the exact force of the prefixes of these modifiers is not clear, they all (except Hiliguayna *hin*) seem to be modifications of the ordinal prefixes.[1] This is indicated by the following facts, viz., a) that all of them except *hin*[2] contain *ka*, which is the basis of the ordinal prefixes; b) that *maika*, identical with Tagalog *meyka* and Pampangan *meka*, is used as ordinal prefix in Ilokan and Nabaloi; c) that the numeral after the prefix regularly appears in the form it has in the ordinals, e. g.,[3]

	Modifier	*Ordinal*
Tag.	meykatlo	ikatlo
	meykapat	ikapat
Pamp.	mekatlo	katlo
	mekadinalan	kadinalan
Pang.	mikapat	kapat
Nab.	kaddo	maikaddo

These formations are joined to the following units in several ways, viz., in Tagalog and Pampangan,. by the ligature (used only after a vowel; after a consonant it is omitted, the two elements being simply juxtaposed[4]); in Ilokan by *t* which is probably a contraction of *ti* the genitive of the definite article, or by the conjunction *ket* 'and' (cf. above, p. 218); in Pangasinan and Nabaloi by the genitive of the definite article; in Hiliguayna and Ibanag by the sign of the indefinite accusative (I, p. 345).

As an example of these intermediate numerals the forms of 'twenty-one' may be given. They are as follows, viz:

Tag.	meykatlo-ng isa
Bis. (Hil.)	hiñgatloan sing usa
Pamp.	mekatlo-n metong
Pang.	mikatlo-n polo na sakey[5]
Ilok.	kanikatlo polo $\left\{ \begin{array}{l} \text{ket} \\ \text{'t} \end{array} \right\}$ maisa

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[1] The explanation of these intermediate forms given in Dr. Seiple's article *The Tagalog Numerals* (JHU. Circs. No. 163, June, 1903, p. 80), while possible from the standpoint of Tagalog and Bisayan alone, is untenable when the other languages are taken into consideration.

[2] *Hin*, however, is followed by the *ka* of the ten.

[3] In Nabaloi, however, *kaappat* and *maikapat* do not correspond.

[4] The ligature in these forms seems to be indiscriminately *ng* or *n*.

[5] Not given, but cf. *mikatlo-n polo na talo* '23.'

Iban.   minika tallufulu tu tadday[1]
Igor. (Nab.) kaddo ne saxei

In Ilokan, Ibanag, and Batan similar forms are found in the teens (cf. above, p. 218).

The meaning of the connectives seems to be 'with respect to,' 'as far as — is concerned,' though it is possible that the relation between unit and modifier in Tagalog and Pampangan is that of noun and adjective; the forms of 'twenty-one' for example, therefore, mean 'thirty as far as one concerned,' the first or 'one' step towards 'thirty' having been taken; for *ket* in the Ilokan forms, cf. above, p. 218. The word for 'ten' is understood in Tagalog, Pampangan, and Nabaloi, just as it is in the case of the teens.

The modifiers of these numerals may be used alone[2] to indicate an indefinite number, more than the ten below and not so much as the ten on which the modifier is based; in this case in Tagalog and Pampangan 'ten,' which is understood in the definite numbers, reappears. In Ilokan these forms seem to be used also to indicate the even ten below the one on which the modifier is based, e. g.:

Tag.   meykatlo-n polo 'some twenty.'
Pamp.   mekalima-ng polo 'some forty.'
Pang.   mikatlo-n polo 'some twenty.'
Ilok.   kanikapat a polo 'some thirty' or 'even thirty.'
Iban.   minikatallufulu[3] 'some twenty.'

In Ilokan and Ibanag this formation may be used to indicate an indefinite teen, e. g.,

Ilok.   kanikaduapolo ⎫
Iban.   minikaruafulu ⎬ 'some ten.'
                       ⎭

The intermediate numbers above 'one hundred' in so far as they are given by the grammars, are made in general by addition, the larger numeral preceding the smaller, and the conjunction 'and' standing between the last two, e. g.,

Tag.   sangdaan at ⎫ isa '101.'
       sangdaa't   ⎬
                    ⎭
       sangdaan at dalawa-ng powo '120.'

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[1] Not given, but cf. *minika limafulu tu pitu* ' 47.'
[2] No examples occur in Hiliguayna and Nabaloi.
[3] Assumed on the basis of *minikaduafulu* 'some ten,' and *minikatallugatut* 'over two hundred.'

Tag.   sangdaan dalawa-ng powo $\left\{ \begin{matrix} \text{at} \\ \text{,t} \end{matrix} \right\}$ isa '121.'

sanglibo $\left\{ \begin{matrix} \text{at} \\ \text{,t} \end{matrix} \right\}$ isa '1001.'

sanglibo at dalawa-ng daan '1200.'

sanglibo dalawa-ng daan dalawa-ng powo't isa '1221.'
    etc., etc.

Similarly in the following languages, the word in parenthesis being the word for 'and,' viz., Cebuan (*ug*), Hiliguayna (*kag*), Pangasinan (*tan*), Ilokan (*ket*), Nabaloi (*tan*), Bontok Igorot (*ya*), Magindanao (*engu, ngu*).

In Cebuan the form *usa ka-libo ug may usa* '1001' with double connective *ug* and *may* is given by Encina.[1]

In Hiliguayna it is possible that forms with the double connective *kag may* like *kaluhaan kag may usa* 'twenty-one' are also formed.[2]

In Nabaloi, *tan* seems to be used wherever an addition is to be indicated;[3] in these compound numbers the teens are expressed by 'ten and one' etc., instead of by *sawal ne* as above;. e.g.,

> sandasus tan sampulo tan saxei '111.'

In Bontok in some of the higher numerals a particle *nan*, probably identical with the *nan* used in forming distributives (cf. below, p. 242), is employed in addition to *ya* 'and,' e. g.:

> sinpoo ya nan chuwa lifo '12,000.'
> sinpoo ya nan tolo lifo '13,000.'

In Bagobo the conjunction is omitted in the forms that are given, viz.,

> sabbad gatos sapolo '110.'
> sabbad mararan sabbad gatos '1100.'

Ibanag, to judge from the form of the numbers intermediate between the tens, e. g., *duafulu tadday* 'twenty-one,' probably also dispenses with the conjunction.

In Samaro-Leytean, when the compound number consists of a power of 'ten'+any number less than 'one hundred,' the power of 'ten' is followed by the word for 'having' *mey*, after

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[1] *Grammatica bisaya-cebuana*, Manila, 1885.

[2] Cf. Mentrida-Aparicio, *Arte de la lengua bisaya-hiligayna*, Tambobong, 1894, p. 21.

[3] This assumption is based on the form of the numerals for one hundred + the teens, as no other compound numerals involving the same principle are given.

which the remaining part of the numeral has the same form it
would have if standing alone. If the number contains two or
more powers of 'ten,' the lowest is connected with the numbers
below 'one hundred' as above, and the higher power or powers
are placed before the lowest power without connective, e. g.:

usa ka-gatos mey usa '101.'
usa ka-gatos mey karuhaan '120.'
usa ka-yokot mey usa '1001.'
usa ka-gatos mey katloan kag usa '131.'
unum ka-yokot, duha ka-gatos mey napolo '6210.'
tolo ka-ribu, duha kayokot, lima kagatos mey kapatan
  kag walo '3,002,548.'

In Bikol the word for 'having' *mey, mei,* seems to be used
between the two lowest elements of a compound number, e. g.,

sanggatos mei saro '101.'
sanggatos, apat na palo mei tolo '143.'
sangribo, walo-ng gatos, pito-ng polo mei siam '1879.'

In Sulu when the compound number consists of two parts,[1]
they are connected by *tug* 'having,' e. g.,

angratus tug isa '101.'
angratus tug kauhan '120.'
angibu tug angratus '1100.'

In Pampangan these intermediate numbers are regularly
indicated in a way similar to the teens by *lalo* or *lawit* 'over-
plus' followed by the hundred, thousand, etc., from which the
count is proceeding (*lalo* taking the ligature), and this in turn
followed by the number above the even hundred, thousand,
etc., which may be connected with the preceding by *ampon* or
at 'and'.[2] 'Hundred' is used in the root form, e. g.:

lalo-n }
lawit } dalan (ampon) metong '101.'
lalo-n dalan (ampon) labi-n metong '111.'
lawit dalan (ampon) lima-ng polo '150.'
lawit libo lima-ng dalan '1500.'
lalo-n libo't walo-ng dalan mekanum metong '1851.'

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[1] No examples of numbers consisting of more than two parts are
available.

[2] At least according to Bergaño's grammar published in 1729. In all
probability, however, forms made after the Spanish fashion, e. g.,
dinalan ampon metong, etc., are in use here as in the other languages
(cf. the adverbial forms, p. 247, below).

lawit libo anam a dalan ampon mekadinalan siam '1699.'

lawit adua-ng laksa mekasiam atlo '20,083.'

lalo-ng laksa walo-ng libo pitu-ng dalan mekalima-n lima '18745.'

lawit adua-ng sangyota atlo-ng gatus mekalima-n anom a libo ampon anam a dalan at mekatlo-n anam '2,346,626.'

As appears from these examples *lalo* or *lawit* is used only once, the remainder of the number being expressed in general as in English with the exception of the intermediates with prefixed *meka*.

The ancient system of numeration discussed above (p. 219 ff.). was also employed for these intermediate numbers, the modifier of the unit being made according to rule on the basis of the next higher hundred, thousand, etc., e. g.,

Tag.	meykatlo-n daan isa '201.'
Pamp.	mekadua-n dalan a metong '201.'
Pang.	mikadua-n lasus na sampolo '110.'
Ilok.	kanikadua ribu ket dua gasut '1200.'

In general in Pampangan not more than one *mika* form, and in Pangasinan not more than two *mika* forms are used in succession in the same compound number, forms made by addition being employed after the first, e. g.,

Pamp.	mekatlo-n dalan apat a polo ampon anam '246.'
Pang.	mikadua-n libo na mikadua-n lasus na dua-n polo tan lima '1125.'
not,	*mekatlo-n dalan mekalima-n anam*
and	*mikadua-n libo na mikadua-n lasus na mikatlo-n polo na lima.*

The modifying element of these intermediate forms may be used alone as in the case of the tens, e. g.,

Pamp.	mekatlo-n dalan	'between two and three hundred.'
	mekapat libo	'between three and four thousand.'
Pang.	mikadua-n lasus	'between one and two hundred.'

In Ilokan they may also be used for the even hundreds, etc., as in the case of the tens, e. g.,

kanikatlo gasut	'between two and three hundred' or 'even two hundred.'
kanikapat a gasut	'between three and four hundred' or 'even three hundred.'

In Tagalog, however, in the numbers between the first and
second hundred, first and second thousand, etc., a formation
similar to that of the teens was employed, viz., *labi* 'overplus'
followed by the oblique of the number (hundred, thousand,
etc.) from which the count was proceeding, and this followed
by the number above the even hundred, thousand, etc. The
number above the even hundred, etc., is modified by the preced-
ing complex like an adjective, the ligature sometimes standing
between them, and the literal meaning of these numerals being
'a more-than-a-hundred one,' etc., e. g.:

> labi sa raan isa '101.'
> labi sa raan sang powo '110.'
> labi sa raan labi-ng isa '111.'
> labi sa raan dalawa-ng powo '120.'
> labi sa raan meykatlo-ng isa '121.'
> labi sa libo-n isa ' 1001.'
> labi sa laksa dalawa-ng powo '10,020.'
> labi sa yota-n tatlo '100,003.'

Appendix (Cardinals given by Montano[1]).

	Samal	*Manobo*	*Tagakaolo*	*Bilan*	*Atas.*
1	isa	sabad	isa	anisa	sakkad
2	dua	kadua	dua	aluu	arua
3	too	ikatlo	katlo	atlo	tatlo
4	upat	upat	ufat	faat	appat
5	lima	lima	lima	lima	limma
6	ikaunum	ikaunum	kanuon[2]	aguaman[2]	annam
7	ikapito	ikapito	fito	nagfito	pitto
8	uao	ualo	kaulian[2]	gualo	ualo
9	siam	siao	siam	gasium	siau
10	sampo	polo	samfolo	gasfaolan[2]	sapulo
11	sampo isa	polo isa	samfolo tag isa	sanfolo satu	sapulo isagkad
20	kauaan	dua polo	karuan	aluu folo	arua-n pulo
30	atloan[3]	lolo polo[3]	katloan	atlo folo	atadlu-m pulo
100	sanggatus	sabad dagatus	sanggatus	?	sakkad na gatus
1000	sangman	sabad mararan	sangmaala	amlibo	sakkad na mararan

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[1] Cf. above, p. 199, ft. nt. 3.

[2] Probably miswritten.

[3] Probably mistakes for *katloan, tolo polo.*

In a number of cases the author seems to have confused ordinals with cardinals, so in 'two' in Manobo, in 'three' in Manobo and Tagakaolo, in 'six' in Samal, Manobo, and Tagakaolo, in 'seven' in Samal and Manobo, perhaps in 'eight' in Tagakaolo, and in 'nine' and 'ten' in Bilan, where *ka* has become *ga* (cf. *agu* 'I' for *aku*). Bilan 'six' and 'eight' may also be ordinal forms. Bilan 'seven' is apparently a verbal form.

Intervocalic *l* is lost in Samal (cf. I, p. 333 f.); *p* becomes *f* in Tagakaolo and Bilan; an intervocalic consonant is often doubled in Atas. 'Ten' and its powers are regularly preceded by a prefix meaning 'one' except 'ten' in Manobo.

The forms that call for remark are the following, viz.:

1—*sabad* is the same as Bagobo *sabbad* without doubling; *anisa* is probably *a* (articular particle) + *n* (ligature) + *isa*; *sakkad* is probably *sa* + *kad* (numeral coefficient?) with phonetic doubling.

2—in *aluu* the *a* is probably articular, *luu*, a modification of **lua* for **dua*; *arua* has the same articular (?) *a*.

3—*too* is for *tolo* with loss of intervocalic *l* as in *uao* 'eight,' *po* 'ten'; *atlo* has an articular (?) *a*.

4—*faat* has been made dissyllabic by splitting the *a* of **fat* < **pat*.

6—*kanuon* is perhaps a mistake for **ka-unom*; *aguaman*, for **aga-unam*, the initial *a* being still difficult to explain.

8—*uao* is for *ualo* with loss of intervocalic *l*; *kaulian* seems to contain the suffix *an*, the form may possibly be a mistake for **kaualoan* 'eighty,' instead of an ordinal formation; *gualo* is probably for **ga-ualo*.

9—*siao*, *siau* are to be explained like Magindanao *siau*; *gasium* is a modification of **ga-siam*.

10—*gasfaolan* is probably for **ga-sa-falo-an*, with prefix *sa* 'one,' and suffix *an*.

Teens—The teens seem to be formed by addition without connective except in Tagakaolo, where *tag* (=Sulu *tug*) is employed; in *isagkad*, miswritten for *isakkad*, *i* is probably ligature.

Tens—The tens in Samal and Tagakaolo are formed as in Bisayan and Sulu; in the other languages by multiplication, the ligature being used in Atas. Samal *kauaan* is for **kaluaan* <

*ka-dua-an; Atas *atadlum polo* is phonetic spelling for **atatlo-n polo.*

100—The root word is *gatus*; Atas *na* is probably ligature; *sabad da gatus* probably represents *sabad a gatus* with ligature *a*.

1000—Besides the familiar root words *libo* and *dalan* (in *mararan*), two new ones appear, viz., *man* and *maala*; *amlibo* is probably articular *a*+ligature *m*+*libo*; Atas *na* is to be explained as in ' 100.'

Ordinals.

The ordinals, with the exception of the first, are made from the cardinals with the following prefixes, viz.:

Tag., Bis., Bik., Iban., Mag.	ika
Bat.	icha (= ika)
Pamp., Sulu, Bag.	ka
Pang.	ka,[1] onkoma, koma
Ilok.,	maika, ka
Igor. (Nab.)	maika, mai

In Batan and Ibanag the ordinals, except the first in Ibanag, are regularly followed by the genitive of the third personal pronoun, singular, viz., *na*, in Batan; singular or plural, viz., *na* or *da*, in Ibanag. As the Ibanag forms, however, are usually given in DeCuevas' grammar without these suffixes, they will be omitted in giving the ordinals here.

In Bontok Igorot the numeral adverbs are used as ordinals (cf. below, p. 245 ff.).

' First' is expressed as follows in the various languages, viz.:

Tag.	naona
Bis. (Ceb.)	nahaona
Bis (Hil.)	nahaona
Bis. (S. L.)	siapa, ona, nahaona, siahan pa
Bik.	enot
Pamp.	mona
Pang.	inmona (*pret.*), onona (*pres., fut.*)
Ilok.	omona
Iban.	olu

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[1] Those made with *ka* signify anyone of a certain number, e. g., *kalima* is anyone of a group of five ; anyone of this group is *kalima* ' fifth ' with regard to the other four.

Bat.	ichasana
Igor. (Nab.)	mapangdu
Mag.	muna
Sulu	kaisa
Bag.	ona, tagna

In Batan and Sulu the forms are made with the regular ordinal prefix, in Sulu on the basis of *isa* ' one,' and in Batan probably on the basis of the particle *sa*, though *ichasana* may represent a contraction of **icha-asa-na*. The majority of the other forms are made from a root *una, ona* meaning 'first, beginning.' This occurs unchanged in Samaro-Leytean and Bagobo, but usually it is combined with verbal particles or modified like a verbal root, the meaning being ' acting as first,' or ' being first,' viz.,

Tag.	na-ona
Bis.	naha-ona
Pamp.	m-ona
Pang.	inm-ona, on-ona *(redup.)*.
Ilok.	om-ona
Mag.	m-una

Bagobo *tagna* perhaps contains *ona*. Ibanag *olu* is the common Philippine word for ' head.' Samaro-Leytean *siapa* and *siahan pa* are perhaps *sia*, the pronoun of the third person singular, and *siahan*, a derivative with passive suffix *an*, followed by the adverb *pa*, which ordinarily means ' still, yet,' but which here no doubt simply emphasizes the preceding word. The original meaning was probably something like ' it, the one *par excellence.*' Nabaloi *mapangdu* probably contains the adjectival prefix *ma*. The meaning of the roots of Bikol *enot*, Nabaloi *mapangdu*, and Bagobo *tagna* is not certain.

The remaining ordinals from ' two ' to ' nine' are made regularly by prefixing the proper particle to the cardinal with the following exceptions, either particle being used in those languages which have two, except in Nabaloi, where *maika* alone is employed.

a) The *a* of the prefix regularly coalesces with the *a* of units with initial *a*, e. g.,

Tag.	ikapat ' fourth.'
Pamp.	kanam ' sixth.'

Iban.   ikappat 'fourth.'
Igor. (Nab.)   maikapat[1] 'fourth.'
Bag.   kannam 'sixth.'

Bikol is an exception to this rule, e. g.,

ikaapat[2] 'fourth.'
ikaanom 'sixth.'

In Ilokan, 'four' and 'six' are irregular, being made as if the cardinals began with *a.* They are, viz.,

maikapat, kapat 'fourth.'
maikanem, kanem,[3] 'sixth.'

In 'four' and 'six' the bases may be *pat* and *n-m* instead of *apat* and *an-m;* forms like Bisayan *ika-upat*, *ika-unom*, Bikol *ika-apat*, *ika-anom* argue for the dissyllabic bases; forms like Ilokan *maikapat*, *maikanem*, for the monosyllabic. In Pampangan 'two' and 'three' the ordinals are probably based on *dua* and *tlo*, not on *adua* and *atlo*.

b) The second ordinal is irregular in Tagalog and Nabaloi, viz.,

Tag.   ika-lawa, ika-lua
Igor. (Nab.)   maikadgua

and in Bagobo a special word *sosog* occurs alongside of the regular formation. In Tagalog in *ikalawa* the ordinal particle has either been prefixed to a shortened form of the cardinal, or *lawa* represents a modification of a more original **dawa* for **duwa* (cf. above, p. 204); *ikalua* may be a shortened form of *ikalawa*, or it may represent **ika-dua*. In Nabaloi the form is derived from **maikad-wa* < **maika-dua*, the *u* becoming *w*, due to the change in the arrangement of syllables, and then changing to *gu* according to rule (I, p. 332), and the *d* in this combination escaping the regular change to *ch* (I, p. 333).

c) The third ordinal is made from a base *tlo* in several of the languages, viz.,

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[1] The doubling of the cardinal *appat* seems to be omitted here.
[2] Written *ikaapot*, doubtless simply a mistake for *ikaapat*.
[3] Not given, but practically certain.

Tag., Bik.	ika-tlo
Pamp., Bag.	ka-tlo
Pang.	ka-tlo, koma-tlo
Ilok.	maika-tlo, ka-tlo
Bat.	icha-tdo-na

Cebuan and Hiliguayna have the two forms *ika-tlo* and *ika-tolo*; Nabaloi has the form *maikaddo* (by assimilation from **maikatdo<*maikatlo*).

d) The sixth ordinal in Hiliguayna has developed a secondary glottal catch, viz., *ikan-um*; Samaro-Leytean has besides the regular form *ikaunom*, a form *ikanum*, based on *anum* or *num* (cf. a, above); in Nabaloi an analogical *d* borrowed from *maikadima* 'fifth' appears before the cardinal, e. g., *maika-dannim*.

In the case of the tenth ordinal the particles are prefixed, as in the ordinals from 'two' to 'nine,' sometimes to the root, sometimes to the full form of the cardinal; in Batan the suffix *na* follows the prefix, viz.,

Tag.	ika-powo, ika-sangpowo, ikapolo
Bis. (Ceb.)	ika-polo
Bis. (Hil.)	ika-polo, ika-napolo
Bik.	ika-polo, ika-sangpolo
Pamp.	ka-polo
Pang.	ka-polo, koma-polo
Ilok.	maika-pollo, ka-pollo[1]
Iban.	ika-fulu, ika-mafulu
Igor. (Nab.)	maika-sampulo
Bat.	ichasana a pogo
Sulu	ka-hangpoh
Bag.	ka-sapolo

The remaining ordinals, with the exception of certain intermediate numerals, are made by prefixing the proper prefixes to the cardinals. In Pangasinan from 'twenty' upward the two series of ordinals have the same form, *koma* being used as prefix, or the *ka* series may take the prefix *onkoma*; in Nabaloi from 'eleven' upward, the prefix *mai* alone is used, e. g.,

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[1] Not given, but probably correct.

Pang.   koma-dua-n polo 'twentieth'
             onkoma-dua-n polo 'any one of twenty, twentieth.'
Igor. (Nab.) mai-sawal ne saxei 'eleventh'
             mai-chuwa polo 'twentieth.'

In the powers of ten the ordinal particles are sometimes pre-
fixed to the root form of the cardinal, sometimes to the fuller
form. In Pampangan[1] except in *dinalan*, and in Pangasinan
they are prefixed to the root form, e. g.,

	100*th*	1000*th*
Pamp.	ka-dinalan	ka-libu
Pang.	koma-lasus	koma-libo

In Tagalog they are usually prefixed to the fuller form,
though forms derived from the simple root also occur, e. g.,

ika-sangdaan }
ika-raan   } 'one hundredth.'

In Hiliguayna, Sulu, and Nabaloi, they are prefixed to the
fuller form. In Cebuan they may be prefixed to either the
root or the fuller form, e. g.:

Bis. (Hil.)   ika-isa-ka-libo 'thousandth.'

Bis. (Ceb.)   ika-usa-ka-gatos }
              ika-gatos   } 'hundredth.'

Sulu   ka-ang-ratus   "

Igor. (Nab.) mai-san-dasus   "

In the other languages the forms are not given.

The intermediate numerals with prefixed *meyka* in Tagalog
and *meka* in Pampangan may take the ordinal prefix regularly,
or be used unchanged as ordinals, e. g.,

Tag.   ika-meykatlo-ng apat }
        meykatlo-ng apat   } 'twenty-fourth.'

Pamp.   ka-mekatlo-n lima }
        mekatlo-n lima   } 'twenty-fifth.'

In Tagalog moreover there was a third series of forms made
by dropping *mey* after the prefix *ika*.[2]

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[1] The ordinal of *sangyota* 'million,' which does not occur, is probably
ku-sangyota, sangyota being treated as a root.

[2] The only example of this formation (given by Totanes, p. 106) is
ang icatatlong apat 'the twenty-fourth,' which seems to be a mistake
for *ika-katlo-ng apat*.

The only example given in Pampangan of an ordinal made from forms with *lalo* or *lawit* is without ordinal prefix, viz.,

ing lawit dalan apat 'the hundred and fourth.'

In Ibanag the numbers intermediate between the tens may be expressed regularly by prefixing *ika* to the cardinals made by addition, or by placing the units before the ten towards which the count is proceeding with prefixed *pinaka*, e. g.,

ika-ruafulu tadday } 'twenty-first.'
tadday pinakallufulu[1] }

This particle *pinaka* may be the same as Tagalog *pinaka*, which indicates 'that which takes the place of, passes as, etc.,' e. g., *pinaka-tinapay* 'that which is used instead of bread' from *tinapay* 'bread.' The idea of the complex is perhaps that instead of 'thirty,' etc., we have 'one,' i. e. the one in the decade that ends in 'thirty,' etc.

The particle *ka* which forms the basis of most of the ordinal prefixes seems to be identical with the nominal prefix *ka*, which indicates one of a number of units that are associated in some way or belong to the same class, e. g., Tagalog *ka-tawo* 'one of a number of men, a single man' from *tawo* '*homo*, people,' *ka-tolong* 'one of those that help one another, a single helper' from *tolong* 'to help.' *Ka* prefixed to a cardinal would thus mean 'one of two, three, etc.,' i. e., the second, third, etc., with regard to the others of the same company. From this associative meaning, which is still the only one these forms have in Pangasinan, their use was extended, so that they were employed as ordinals in any connection. In some of the languages additional particles were prefixed or infixed; *i* in *i-ka*, *i-cha*, *ma* and *i* in *ma-i-ka*, *om* in *k-om-a*, *on* in *on-koma*. The prefix *i* may possibly be identical with the articular particle *i*, but it is more likely, as seems to be indicated by the fact that *om* and *on* in *koma* and *onkoma* are also verbal particles, that it is identical with the passive particle *i*; the forms with *ika* thus meaning 'that which is made one of two, three,' etc. The particles *on* and *om* indicate 'becoming, a passage from one state to another,' e. g., Tagalog *g-um-aling* 'to become good' from *galing* 'good,' Pangasinan *on-bato* 'to become

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[1] The only example given; *llu* in *pinakallu*, probably represents *tlu*, cf. below, p. 236.

stone' from *bato* 'stone'; hence forms with *koma* and *onkoma* indicate 'becoming or having become one of two, three, etc.' The prefix *ma* is probably identical with the adjective prefix *ma*. Nabaloi *mai* is probably simply a shortened form of *maika*.

Fractions.

The statements in the various grammars with regard to the fractions are very meager indeed, and in many of them no mention of fractions is made.

Generally speaking, with the exception of the word for 'half' they are identical with or based on the ordinals.

The words for 'half' in the various languages are, viz.:

Tag.	kalahati
Bis. (Ceb.)	katoñga
Bis. (Hil.)	ikatuñga,
	katuñga
Pamp.	sikadua
Pang.	kapaldua
Iban.	pakkarua
Igor. (Nab.)	kaguchua
Bat.	karag[xlvi]
Sulu	ang sipak
Bag.	katoñgñga

In Pampangan, Pangasinan, Ibanag, and Nabaloi 'half' is a derivative of 'two,' the prefixes all containing the ordinal particle *ka* in connection with some other element. In Pampangan and Ibanag the prefixes are the same as those used in the formation of the other fractions (cf. below). In Pangasinan an additional element *pal* or perhaps *apal*, in Nabaloi an additional element *gu* is inserted between the ordinal prefix and 'two.' Tagalog *kalahati* consists of a root *hati* with prefixed *ka* and infixed *la*,[1] the formation being thus similar to that of Pangasinan and Nabaloi. In Cebuan, Hiliguayna, and Bagobo the ordinal particles *ika* or *ka* are prefixed directly to a root *tuñga*, *toñga*; the doubling in Bagobo is probably phonetic. In Batan *karag*, *ka* is perhaps ordinal prefix. In Sulu the root *sipak* is without ordinal particle, simply taking the prefix *ang* 'one, a' (cf. below, p. 236).

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[1] Cf. *dalawa* 'two,' p. 204 above.

The remaining fractions are formed as follows:

In Tagalog they are identical with the ordinals, though in an older period of the language they were formed by prefixing *sa* to the ordinals,[1] e. g.,

<div style="text-align:center">

sa-ikatlo 'third.'

sa-ikapat 'fourth.'

</div>

Fractions derived from intermediate numerals in *meyka* had óne of three forms, viz.,

> sa-meykatlo-ng isa ⎫
> ika-meykatlo-ng isa ⎬ 'a twenty-first.'
> sa-ika-meykatlo-ng isa ⎭

The forms identical with the ordinals may stand alone or may modify the noun *bahagi* 'part,' e. g.,

> ikatlo ⎫
> ikatlo-ng bahagi ⎬ 'a third.'

In Cebuan and Hiliguayna they consist of *bahin* 'part' modified by the preceding ordinal, e. g.,

> Ceb.   ikatolo ka-bahin 'one third.'
> Hil.   ikagatos ka-bahin 'a hundredth.'

In Pampangan they are formed by prefixing *si* to the ordinal even in the case of the first of the series (cf. above), e. g.,

<div style="text-align:center">

si-katlo 'third.'

si-kapat 'fourth.'

</div>

This *si* is probably a contraction of *sa-i*, the formation being thus the same as the Tagalog. The same contraction is found in Tagalog in *sikapat* (<*saikapat*) 'real' *sikolo* (<*saikawalo*) 'half real.'

In Pangasinan they are formed up to 'tenth' by prefixing an additional syllable *ka* to the ordinals with prefixed *ka*, e. g.,

<div style="text-align:center">

ka-katlo 'third.'

ka-kapat 'fourth.'

</div>

From 'eleventh' upward they consist of the noun *poted* 'part' modified by a preceding ordinal with prefixed *koma*, e. g.,

<div style="text-align:center">

komalabi-n sakey a poted 'an eleventh.'

</div>

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[1] Cf. Totanes, *Arte de la lengua tagala*, p. 107, José, *Arte y reglas de la lengua tagala*, p. 729. This formation is still preserved in *saikapat*, *saikawalo* (usually contracted to *sikapat*, *sikolo*), one-half and one-fourth respectively of a *salapi*, a piece of money worth four reals.

In Ibanag they are formed by prefixing *pakka* to the cardinal; the forms given are, viz.,

<div style="text-align:center">

pakkallu 'a third.'

pakkappat 'a fourth.'

</div>

These forms probably represent **pakka-tlu* and **pakka-appat* or **pakka-pat*. This prefix *pakka* is, perhaps, the same as the basis of *p-in-aka* (cf. above, p. 233), which contains the infix *in*. If this is so, the meaning is something like 'that which stands for three, four, etc., has a three, four, etc., quality.'

In Sulu they seem to consist of special words, as in the case of 'half,' e. g.,

<div style="text-align:center">

ang utud 'a fourth.'

</div>

When the numerator of the fraction is more than one, the fraction is expressed in Tagalog by cardinals as 'so many of so many parts,' e. g.,

tatlo nang apat na bahagi 'three-fourths.'

pito nang walo-ng bahagi 'seven-eights.'

In Ibanag and Sulu the word indicating the fraction is preceded by the cardinal indicating the amount of the numerator, e. g.,

Iban.   rua pakkallu 'two-thirds.'

Sulu   to ang-utud 'three-fourths.'

The combination of an integer and a fraction seems to be indicated in Sulu by the fraction preceded by the ordinal of the next higher unit,[1] e. g.,

ka-to ang-sipak 'two and a half (the third half).'

In Ibanag it is expressed by connecting the integer and the fraction by the conjunction *tapenu*, which ordinarily means 'in order that,' but which here probably means simply 'tending towards,' 'in addition to,' e. g.,

lima tapenu rua pakkallu 'five and two thirds.'

In Pangasinan it is expressed by the next higher unit with prefixed *mika* followed by the fraction, the two being connected by *y* or *na*, e. g.,

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[1] Cf. German *dritthalb* 'two and a half,' *vierthalb* 'three and a half,' etc.

mika-dua-y kapaldua 'one and a half.'
mika-tlo-y kakatlo 'two and a third.'
mikapat na poted 'three and a fraction.'

Distributives.

Distributives may be either cardinal or ordinal.   The cardinal distributives have sometimes the meaning 'so many at a time,' sometimes that of 'so many to each.'   Some languages have a separate set of numerals for each meaning.   The ordinal distributives have the meaning 'every first, second, third,' etc.

The cardinal distributives are made from the cardinals by reduplication, by prefixed particles, or by both together.   The chief prefixes used are, viz.:

Tag., Bik.	tig, man
Bis.	tag, tinag (Ceb.)
Pamp.	ti, tia
Pang.	san, tag, tungal
Ilok.	sag, tungal
Iban.	taggi, ta
Igor. (Nab.)	san-sis-kei
Mag.	ñgaga, kaga

The prefix of 'ten' and its powers is usually different from that of the other numbers.

In Bikol and Pampangan the particles *on* and *an* respectively, in Bontok the complex -*s nan isa* or *is nan isa* are used as suffixes.   Reduplicated forms are found in Tagalog, Hiliguayna, Samaro-Leytean, Bikol, Pampangan, Pangasinan, Ilokan, and Ibanag.

The forms of the first five numerals are, viz.:

	1	2	3	4	5
Tag.	tigisa, isaisa	tigalawa, daladalawa	tigatlo, tigatigatlo, tatlotatlo	tigapat, tigatigapat, apatapat	tiglilima, tiglima, limalima
Bis. (Ceb.)	tagsa, tinagsa, tagusa	tagudha, tinagudha, tagduha	tagotlo, tinagatlo	tagupat, tinagupat	tagilma, tinagilma
Bis. (Hil.)	tagisa, tagsa, tagisaisa[1]	tagduhaduha[1], tagduha	?, ?	?	?, ?
Bis. (S.-L.)	tagusa, tagsa, tagsatagsa	?, ?	?, ?	tagapatapat[1], ?	?, ?
Bik.	tigsaro, tigsarosaro[2], manarosaro[3], sarosaroon	manuadua[3], duaduahon[4]	manolotolo[3], ?	?, ?	?, ?
Pamp.	tungal, tionan, tungaltungal	tidua, tiduatidua	titlo, titlotitlo	tiapat, tiapatapat	tialima, tialimalima
Pang.	sansakey, sansasakey	sandedua, sandererua	santatlo, santatatlo	sanepat, saneepat	sanlilima
Ilok.	sagmaimaisa	sagdudua	saggatlo	sagpapat	?, ?
Iban.	taggitadday, tattadday	taggirua, taddurua	taggitallu, tattallu	?	tallilima
Igor. (Nab.)	sansiskei-saxei,	-chua,	-taddo	-appat	-dima.
Igor. (Bon.)	isa-s nan isa,	chua-,	tolo-,		?
Mag.	ñgagaisa	ñgagadua, kagadua[5]	ñgagatelu	ñgagapat	ñgagalima

---

[1] These reduplicated forms are given only by Lozano.

[2] The form *tigsararo*, which is also given, seems to be a mistake for *tigsarosaro*.

[3] In most of the Philippine languages the combination of *n* + a dental becomes by assimilation *nn* and then by simplification of the doubling *n*, as here.

[4] For the *h* cf. I, p. 387.   [5] Cf. Juanmarti, *op. cit.,* p. 64.

In Tagalog the series with *tig* has the meaning of 'so many apiece,' and the reduplicated series, the meaning of 'so many at a time;' and the same difference in meaning is found between the forms with prefix *tag*, and those with prefix *tinag* in Cebuan; between the Bikol forms with prefixes *tig* and *man*, and those with suffixed *on*; and between the unreduplicated and reduplicated series in Pampangan. In the other languages the distributives have probably both meanings, certainly so in Hiliguayna and Pangasinan.

Some of the cardinals have a modified form after the various prefixes. Tagalog *tigalawa* and *tigatlo* are made on the basis of *lawa* (cf. above, p. 204) and *tlo*; the *a* of *tiga* is probably due to the analogy of *tigapat*. Bisayan *tagsa* is probably syncopated from *tagusa* or *tagisa*; it is unlikely that it is formed directly by prefixing *tag* to the root particle *sa*. Cebuan *tagudha*, *tagotlo* and *tagilma* are due to a metathesis of **tagduha*, **tagtolo*, and **taglima*. In Pampangan 'one' is represented by *tungal* or *tionan*; *tungal* is found also as prefix (cf. below, p. 241); *tionan* is perhaps derived from *ona*, the root of most of the ordinals for 'first,' being analyzed as **ti-ona-an*, *ti* being distributive prefix and *an* passive suffix. 'Three' is made on the base *tlo* as in Tagalog. In Pangasinan, 'two,' 'three,' and 'four' are made on the bases *dedua*, *tatlo*, *epat*; *dedua* is a reduplicated form, *e* representing an indistinct unaccented vowel; *tatlo* is the regular form of 'three' in many of the languages (cf. above, p. 205); *epat* is *pat* with *e*, probably equal to articular *i* (cf. above, p. 205). In Ilokan, *saggatlo* is probably derived from **sag-tatlo* by assimilation; *sagpapat* is probably for **sag-apapat* with reduplication like that of the numeral adverbs of 'four' and 'six' in Pampangan (cf. below, p. 246). In Magindanao the final *a* of the prefix *ñgaga* and the initial *a* of *apat* coalesce, or the form is made on the basis *pat*.

All the forms of these distributives not here mentioned, together with those from 'six' upward, are made according to the following rules. Some additional examples of the numbers from 'six' upward will be given.

In Tagalog in the first series *tig* is prefixed to the cardinal, from 'five' upward, usually with reduplication of the first syllable of the cardinal, though sometimes without reduplication, except in the case of the powers of 'ten,' which take the prefix *man*. 'Ten' itself may take either *tig* or *man*, *tig* being

prefixed to the longer, *man* to the shorter form; numerals with
prefixed *meyka* do not take this formation, e. g.:

> tig-aanim 'six apiece.'
> tig-sasangpowo
> mamolo (man+polo)[1] } 'ten apiece.'
> tig-lalabi-ng isa 'eleven apiece.'
> man-daan
> manaan } 'a hundred apiece.'
> man-libo 'a thousand apiece.'

In the second series, if the cardinal is dissyllabic it is repeated
entire; if it contains more than two syllables only the first two
are repeated, e. g.,

> animanim 'six at a time.'
> sangposangpowo 'ten at a time.'
> labilabi-ng isa 'eleven at a time.'

In Bisayan, at least in Cebuan, the distributive particle is
simply prefixed to the cardinals, e. g.,

> tag-unum 'six apiece.'
> tag-pito 'seven apiece.'
> tinag-unum 'six at a time.'
> tinag-pito 'seven at a time.'

In Hiliguayna apparently the cardinal may be reduplicated
as in 'one' and 'two.' In 'ten' the distributive particle may
be prefixed to the root, e. g., Hil. *tagpolo*, or to the form with
prefixed *na*, e. g., Sam.-Ley. *tagnapolo*. Hiliguayna also pre-
sents the forms *tag-usa-ka-polo* and *tag-sampolo*. In the powers
of 'ten' the particle is prefixed to the root in Samaro-Leytean;
in the other dialects forms are not available, e. g.:

> tag-gatos 'one hundred at a time.'
> tag-yokot 'one thousand at a time.'

In Bikol apparently *tig* or *man* are prefixed and *on* suffixed
to the cardinal with the first two syllables reduplicated.

In Pampangan in the first series *tia* is prefixed to cardinals
with initial consonant, *ti* to those with initial vowel, e. g.,

> ti-anam 'six apiece.'
> tia-pitu 'seven apiece.'

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[1] In most of the Philippine languages the combination of $m+$a labial
becomes by assimilation *mm*, and then *m* with simplification of the
doubling, as here. *Mamowo* is apparently not formed.

In the second series up to 'ten' *ti* and *tia* are prefixed as above to the fully reduplicated cardinal; the teens may have reduplication or not; 'one hundred' is without reduplication; the powers of ten seem to have reduplication, e. g.:

> ti-anamanam 'six at a time.'
>
> tia-labilabi-n metong } 'eleven at a time.'
> tia-labi-n metong   }
>
> tia-dinalan 'one hundred at a time.'
> tia-libolibo 'one thousand at a time.'

The even tens seem to be formed by prefixing the distributive unit as a modifier to *polo*, e. g.,

> tiduatidua-ng polo 'twenty at a time.'
> tiawalowalo[1] -ng polo 'eighty at a time.'

The numerals with prefixed *meka* intermediate between the tens seem to be formed by reduplicating the syllable *ka*, and adding the suffix *an*, e. g.,

> mekakatloan adua 'twenty-two at a time.'

In Pangasinan up to 'eight' inclusive, and from 'twenty' upward with the exception of the powers of 'ten' the distributives are formed by prefixing *san* to the cardinal, simple or with first syllable reduplicated; 'five,' 'seven,' and 'eight' have apparently only reduplicated forms, e. g.:

> san-anem } 'six apiece, at a time.'
> san-aanem }
>
> san-pipito 'seven apiece, at a time.'
> san-wawalo[2] 'eight apiece, at a time.'
> san-derua-n polo } 'twenty apiece, at a time.'
> san-derua-n polo }

'Nine' and the teens take the prefix *tag* with reduplication of the first syllable of the cardinal, e. g.,

> tag-sisiam 'nine apiece, at a time.'
> tag-lalabi-n sakey 'eleven apiece, at a time.'

In 'ten' and its powers *tongal* is prefixed to the root form, e. g.,

> tongal-polo 'ten apiece, at a time.'
> tongal-lasus 'one hundred apiece, at a time.'
> tongal-libo 'one thousand apiece, at a time.'

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[1] Written *tivalovalo*, probably a mistake.
[2] Written *sanooaolo*, evidently a mistake.

In Ilokan *sag* is apparently prefixed to the cardinal with first syllable reduplicated,[1] except in the case of 'ten' and its powers, in which *sag-tungal* is prefixed to the root form, e. g. :

> sag-sisiam 'nine apiece.'
> sag-tungal-polo 'ten apiece.'
> sag-tungal-gasut 'one hundred apiece.'

In Ibanag in the first series *taggi* is apparently added to the simple cardinal.[2] The second series is formed only from those cardinals with initial consonant, this initial consonant being doubled after *ta* and the first syllable of the cardinal repeated, e. g.,

> tappipitu 'seven at a time.'

In Nabaloi the complex *san-sis-kei* is prefixed to the cardinal, and in Bontok the cardinal is followed by the complex *-s nan isa* as in the case of the first five numerals. In Bontok instead of *s* the particle *is* seems to be used in some of the numerals, e. g.,

> simpoo ya chuwa is nan isa 'twelve to each.'

In Nabaloi 'ten' has the fuller form, in Bontok sometimes the root, sometimes the fuller form, e. g.

> Nab. san-sis-kei-sam-pulo 'ten to each.'
> Bon. poo-s nan isa 'ten to each.'
> sim-poo ya isa-s nan isa 'eleven to each.'

In Magindanao, *ñgaga* or *kaga* (to judge from the form *kagadua*) are prefixed to the cardinal; the forms above 'five' are not given.

With regard to the formative elements of the distributives, *man* and *tungali* are clear, the explanation of the others is more uncertain. *Man* is the same prefix which is used with nouns in many of the languages to indicate 'so many apiece,' e. g., Tagalog *mamiso* (<*man+piso*) 'a peso to each.' *Tungal* is certainly connected with Tagalog *tungali*, which means to do something, one after another, e. g., *magtungali kayo-ng uminum* 'drink one after the other.'

The remaining elements are apparently made up of a number of smaller elements, the principal of which seem to be *ti, ag, sa*

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[1] The sixth numeral, which is not given, is probably *sagnanam*, cf. *sagpapat.*

[2] The distributives of 'ten' and its powers are not given.

(Iban. *ta*, cf. I, p. 333), all of which may appear in a shorter form without vowel, viz., *t*, *g*, *s*.

Ti is found uncombined in Pampangan; the *a* of *tia* is probably derived from forms like *tiapat*, *tianam*, in which the root has initial *a*.   *Ti*, *t* is probably also an element of Tagalog and Bikol *tig*, Bisayan and Pangasinan *tag*, Cebuan *tinag*, which are to be analyzed as *ti-g*, *t-ag*, and *t-in-ag*, combinations of *ti* with the formative element *ag*, and infix *in.*

The particle *sa*, *s* is found in Pangasinan *san*, Ilokan *sag*, Ibanag *taggi*, *ta*, Nabaloi *san-sis-kei*, Bontok *s* or *is nan isa*. Pangasinan and Nabaloi *san* is *sa* + ligature *n*; Ilokan *sag* and Ibanag *taggi* contain *ag*, and are to be analyzed thus: *sa-ag* or *s-ag* or *sa-g*; what the final *i* or *gi* of the Ibanag prefix is, is uncertain.   Ibanag *ta* is either *sa* uncombined, or *sa* + *ag*, the doubling after the prefix representing the assimilation of *g*; Bontok *s* and *is* are perhaps reduced forms of *sa*; Nabaloi *sis* is perhaps a combination of these reduced forms.   The *kei* of Nabaloi is the same as the *xei* of *saxei* 'one' (cf. I, p. 345); Bontok *nan isa* is probably a genitive of *isa* 'one.'

The particle *ag*, *g* occurs in *tig; tag, taggi* (Iban.), *sag* and perhaps *ta* (Iban.), which have already been discussed, and probably also in Magindanao *ngaga, kaga*.   These seem to be composed of *ag* or *g* preceded by a particle *nga* or *ka*, and followed by an *a* which is perhaps borrowed from cardinals with initial *a* as in the case of *tia*.

The particle *sa* is without doubt the root particle of the numeral 'one,' the particle *ti* is perhaps identical with the root particle *ti* of the Ilokan article and Pampangan demonstrative *iti* (I. p, 353), used here with the meaning of 'one' like *sa*. The particle *nga* of Magindanao is perhaps equivalent to the common ligature *nga*, being likewise a demonstrative particle used in a numeral sense; *ka* is uncertain.   The particle *ag* is perhaps to be connected with the particle *ag* of Harayan demonstrative *ag-to* and with the indefinite accusative signs *ug* and *ak* in Cebuan (I, pp. 345, 355); its function seems to be mainly connective.   The suffix *on* in Bikol and the infix *in* in Cebuan are doubtless the same as the identical verbal particles.

These particles *sa*, *ti* and *nga*, if this analysis is correct, give the idea of 'for each one,' 'apiece,' 'at once' to, the cardinal numeral to which they are prefixed.

A special series of ordinal distributives is usually not formed. Tagalog, however, has such a series formed from the ordinals by full reduplication, e. g.,

> ikaikalawa 'every two, every second.'
> ikaikatlo 'every three, every third.'

Adverbs.

The numeral adverbs are of two kinds, viz., cardinal and ordinal. Cardinal adverbs answer the question 'how many times?' Ordinal adverbs answer the question 'which time in a series?' A special series of ordinal adverbs has been developed in only a few cases.

The cardinal adverbs are formed from the cardinals by prefixes sometimes accompanied by reduplication. The chief prefixes are, viz.:

Tag., Bis., Bik., Pamp., Mag., Sulu,	maka
Pang., Ilok.	mamin, mami
Iban.	mi, min
Igor. (Nab.)	pin
Igor. (Bon.)	mami(n), manga

These particles are in many cases varied like verbal particles to express tense. In Tagalog *maka* is the usual particle, but *naka* may be used to indicate past time. In Bisayan and Bikol, *naka* is the usual particle, but *maka* is used of the future. In Pampangan, *meka*, in Pangasinan, *amin, ami*, and in Ilokan, *namin, nami* are the forms for past time. Tagalog *minsan* has also the form *ninsan* for the preterite.

Reduplication is found in older Tagalog and in Pampangan. The forms of the first five numerals are, viz.:

	1	2	3	4	5
Tag.	minsan	makalawa	makaitlo, makatatlo	makaipat, makaapat	makalima, makalilima
Bis. (Ceb)	nakausa	nakaduha	nakatolo	nakaupat	nakalima
Bik.	nakasaro	nakadua	nakatolo	?	?
Pamp.	{ misan, tolo-misan	makaladua, tolo-kaladua	makatatlo, tolo-katatlo	makapapat, ?	makalilima, ?
Pang.	maminsan	mamidua	mamitlo	mamipat	maminlima
Ilok.	maminsan	mamindua	mamitlo	maminpat	maminlima
Iban.	mittan	mirua, middua	millu	mippat	milima
Igor. (Nab.)	pinsak	pinchua	pintaddo	pinappat	pindima
Igor. (Bon.)	mamingsan	mamiddua	mamitlo	mangipat	mangalima
Mag.	makaisa	makadua	?	?	?
Sulu	makamisan	makarua	makato	?	?

The first of the series is made regularly by prefixing the adverbial particle to the cardinal in Cebuan, Bikol, and Magindanao; Nabaloi *sak* in *pinsak* seems also to be a shortened form of the cardinal *saxei* (<*sakei*). The other forms are based on the root particle *sa*, which takes everywhere the verbal suffix *an*, the *a* of which coalesces with the *a* of the particle, and a verbal prefix in the forms *mi, min, ming*. In addition Pampangan, Pangasinan, and Bontok have the prefix *ma*, probably the adjectival prefix, and Sulu has the regular adverbial prefix *maka*; Pampangan may take the additional prefix *tolo*. Ibanag *mittan* stands either for **mi-ta-an* <**mi-sa-an* with phonetic doubling, or for **min-ta-an* *<*min-sa-an* with assimilation of *n* to *t*.

The other numerals are made with the adverbial prefixes. In Pangasinan 'two,' 'three,' and 'four,' and in Ilokan 'three' are made with *mami*, the others with *mamin*. In Bontok *mami* occurs in 'three'; *mamiddua* represents **mamin-dua* with assimilation; the prefix of 'four' and 'five' is *manga*, the final *a* being elided before the initial vowel of 'four.' In Ibanag, *mi* is apparently the prefix in all the forms except *middua* <**min-dua*; *min* is perhaps also to be assumed in *mippat* (cf. below). In Pampangan, *tolo* may be substituted for the *ma* of the prefix *maka*.

In some cases the form of the cardinal has been changed. In Tagalog 'two' is made on the basis *lawa* like the ordinal, and 'three' and 'four,' besides the regular forms, have forms made on the bases *itlo, ipat; ipat* is *pat* with articular *i* as in the Bontok cardinal; the *i* of *itlo* is probably borrowed from *ipat*. In Pampangan the bases are all reduplicated, the vowel of the reduplication in 'two' and 'three' being *a*; *ladua* is probably for **dadua*; *makapapat* probably stands for **maka-apapat*. In Pangasinan and Ilokan, 'three' is made on the base *tlo*, and 'four' apparently on the base *pat*. Ibanag *millu* and *mippat* are probably made on the same bases, *millu* being derived by assimilation from **mi-tlo*, and *mippat* standing either for **mi-pat* with phonetic doubling, or for **min-pat* with assimilation. Bontok 'three' is made on the base *tlo*, 'four' apparently on a base *ipat*.

All the forms of these adverbs not here mentioned, together with those from six upward, are made according to the follow-

ing rules. Some additional examples of the numerals from 'six' upward will be given.

In Tagalog from 'five' upward *maka* is prefixed to the cardinal, simple or reduplicated, the prefix *sang* of 'ten' and its powers being regularly omitted in the reduplicated forms, and sometimes in the forms without reduplication,[1] e. g.,

maka-sangpowo \
maka-popowo   / 'ten times.'

maka-labi-ng isa .   \
maka-lalabi-ng isa   / 'eleven times.'

maka-sang libo \
maka-libo   / 'a thousand times.'

In Bisayan and Bikol *naka* is prefixed to the cardinal. In Samaro-Leytean 'ten' stands either with or without the prefix *na*, to judge from the forms, *naka-polo* 'ten times,' *naka-napolo kag usa* 'eleven times.' In Bikol the higher cardinals seem to be reduplicated, to judge from *naka-riribo* 'thousand times.' In Bikol the ordinals may also be used as adverbs.

In Pampangan, *maka* is prefixed to the cardinal, which has its first syllable reduplicated when it begins with a consonant, as in 'five;' but when the cardinal begins with a vowel, as in 'four' and 'six,' the consonant following that vowel is prefixed to the cardinal; this is likewise due to reduplication, the vowel and following consonant of the cardinal being repeated, and the initial *a* of this reduplicated form coalescing with the *a* of *maka*; 'ten' has the root form; 'hundred' preserves the infix *in*, e. g.:

makananam 'six times.'
maka-pipito 'seven times.'
maka-popolo 'ten times.'
maka-dirinalan 'a hundred times.'

In numbers intermediate between the even tens, etc., the adverbial particle is prefixed to forms made by addition, e. g.,

maka-tatlo-ng polo ampon adua '32 times.'
maka-dirinalan ampon mekapat pito '137 times.'
maka-lilima-ng dalan ampon mekatlo-n siam '529 times.'

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[1] In Tagalog an additional series of adverbs meaning 'so many days ago' is formed by prefixing *ka* to the *maka* forms, e. g.,

kamakalawa 'day before yesterday.'
kamakatlo (*irregular*) 'three days ago.'

In Pangasinan, *mamin* is prefixed to the cardinal except in 'six,' which is irregular, 'ten' and its powers having the root form, e. g.,

> mamin-pito 'seven times.'
> mamin-polo 'ten times.'
> mamin-lasus 'one hundred times.'

'Six' is *maminem*, and is probably derived from **maminanem* or **mamininem* (cf. the bases *ipat*, *epat*, in Tagalog, Bontok and Pangasinan) by haplology as in the Ilokan form.

In Ilokan, *mamin* is prefixed to the cardinal as in 'five,' 'ten' having the root form, e. g.,

> mamin-ennem 'six times.'
> mamin-polo 'ten times.'

'Six' is also *maminnem* for **mamininnem*, one of the syllables *in* having been dropped, or lost by haplology.

In Ibanag, *mi* is said to be prefixed to the cardinal, but no examples above 'five' are given.

In Nabaloi, *pin* is prefixed to the cardinals, 'ten' and its powers having the root form, and the teens being expressed by *sawal +* the unit without connective, e. g.,

> pin-pulo 'ten times.'
> pin-sawal saxei 'eleven times.'
> pin-dasus 'one hundred times.'

In Bontok up to 'ten' inclusive *manga* is prefixed to the cardinal, the final *a* coalescing with the initial *a* of 'six'; and 'ten' having the root form,[1] e. g.,

> manganim 'six times.'
> manga-pito 'seven times.'
> manga-poo 'ten times.'

Above 'ten' in general the unit that stands at the beginning of the compound cardinal takes the form given above, the rest of the numeral remaining unchanged,[2] e. g.,

> mangapoo ya chuwa 'twelve times.'
> mamiddua poo 'twenty times.'

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[1] 'Nine' times is given as *mang-nin-siam*, but this is probably simply a mistake, cf. *manga-siam ay poo* 'ninety times.'

[2] There seems to be a great deal of freedom in the use of the ligature; it may be omitted, or *ay* may be used after a vowel.

mangalima ay poo 'fifty times.'

mangipat[1] ay lasot ya isa 'four hundred and one times.'

The hundredth of the series is made by prefixing *manga* to *poo ay poo*[2] 'ten tens' instead of to *lasot*. The thousandth is *kalasolasot* or *kalifolifo*, the reduplication emphasizing the largeness of the number.

The meaning of the various formative elements of these numeral adverbs is not clear, but they all seem to be verbal particles, *pin* and *an* being passive, the others active. This is indicated by the fact that they are varied to express tense. The forms containing a prefix *ka* may be derived from the ordinals. The close relation between the ordinals and these adverbs is shown by the fact that the two classes are identical in Bontok, and that the Bikol ordinals may be used as adverbs. The prefix *maka*, however, may be the active causative prefix, the adverbs formed with it signifying 'causing, màking two, three,' etc.

In Pangasinan and Ibanag special series of ordinal adverbs have been developed, viz.:

	Pang.	*Iban.*	
1	kasia	pamittan	
2	pidua	pamirua	pirua, piddua
3	pitlo	pamillu	pillu
4	pipat	pamippat[3]	pippat[3]
5	pinlima	pamilima[3]	pilima[3]
6	pinen (*sic*)	etc	etc
7	pinpito		
	etc.		

In Pangasinan from 'eleven' to 'nineteen' instead of the forms with prefixed *pin*, the *ka* ordinals or *mika* forms made on the basis of *dua-n polo*, may be used, e.g.,

kalabi-n lima 'the fifteenth time.'

mikadua-m[4] polo-y[5] sakey 'the eleventh time.'

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[1] Written *mangapat*, probably a mistake, cf. *mangipat ay lasot* 'four hundred times.'

[2] Written *poo ya poo*, 'ten and ten,' evidently a mistake.

[3] Not given, but formed according to the rule given by De Cuevas, p. 203.

[4] Assimilated from *n*.

[5] Ligature used instead of a form of the article, as frequently elsewhere.

In Ilokan the ordinals themselves are used as adverbs.[1]

The analysis of *kasia* is not entirely clear; it may be ordinal prefix *ka* + *sia*, identical with the *sia* of Samaro-Leytean *siapa*, *siahan pa* 'first,' and ultimately with the pronoun of the third person singular in many of the languages.

The other forms are simply modifications of the cardinal adverbs. The Pangasinan forms are made by dropping the prefix *ma* of the cardinal adverb and changing the *m* of *mi* to *p*. In *pinen*, if it is correct, the final *m* of **pinem* has been assimilated to the preceding *n*. The Ibanag forms are made by prefixing *pa* to the cardinal adverb, or by changing the *m* of its prefix *mi* to *p*. These forms have, at least formally, passive prefixes with initial *p* like the Nabaloi cardinal adverbs, while the other cardinal adverbs have active prefixes.

Restrictives.

Restrictive numerals are those in which the meaning of the original numeral is restricted by the added idea of 'only.' They are usually derived from other numerals by reduplication. They occur in Tagalog, Pampangan, Pangasinan, Ibanag, and probably in other languages.

In Tagalog this restrictive meaning is given by reduplicating the first syllable of a numeral, cardinal, distributive, or adverb, .e. g.,

> iisa 'one only.'
> titigisa 'only one apiece.'
> miminsan 'only once.'
> dadalawa 'only two.'
> sasangdaan 'only a hundred.'

The restrictive meaning is still further enhanced by combining full with partial reduplication, e. g.,

> iisaisa 'only one.'
> dadaladalawa 'only two.'
> miminsanminsan 'only once.'

In Pangasinan this restrictive meaning is given to cardinals by repeating the first syllable of the numeral including the consonant after the first vowel, e. g.,

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[1] Cf. Williams, *op. cit.,* p. 71.

> saksakey ' one only.'
> taltalo ' three only.
> samsampolo ' ten only.'

This formation is made also from the ordinals in this language, e. g.,

> kadkadua ' the one that alone makes the second of a series.'

The reduplicated distributives seem to have, at least occasionally, a restrictive meaning,[1] e. g.,

> sandererua ' no more than two by two, no more than two apiece.'

In Ibanag restrictive forms are made from the cardinals from ' two ' to ' nine ' by reduplicating the first syllable.[2]

In Pampangan besides the forms consisting of numeral + adverb ' only,' which are found in general in all the languages, the numeral or part of it may be repeated, the two forms being joined by the ligature, and a modifying adverb usually accompanying the complex,[3] e. g.,

> metong mo-ng metong ' only one.'
> apat mo-ng apat ' only four.'
> mekatlo la-n mekatlo-n lima ' only twenty-five.'

Restrictives may also be formed from the cardinals by prefixing *ka* and suffixing *an* to the reduplicated cardinal,[4] e. g.,

> kamemetungan ⎱ ' one only.'
> kamemetungmetungan ⎰
> kalilimaliman ' five only.'

In Ilokan a series of restrictives are made from the adverbs by changing the *m* of the prefix *min* to *p* and inserting an additional *min* between this prefix and *ma*. This is really a species of the reduplication, the prefix *min* appearing first in the active and then in the passive form, e. g.:

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[1] Cf. Pellicer, p. 132.

[2] No examples are given by De Cuevas.

[3] This construction is similar to the use in Tagalog of *na-ng* (the adverb *na* + ligature) between two identical words for the sake of emphasis, e. g.,

> tawo na-ng tawo ' nothing but people.'
> sumulat na-ng sumulat ' to write and write.'

[4] These forms are similar to the Tagalog superlative forms like *katamistam-isan* ' sweetest' from *tam-is* ' sweet.'

maminpinsan 'only once.'

maminpindua 'only twice,'

maminpitlo 'only three times.'

maminpinpat 'only four times.'

maminpinnem[1] 'only six times.'

maminpinpolo 'only ten times.'

Addenda and corrigenda to Part I:

p. 340—Samaro-Leytean genitive *nan* is used only in such expressions as *ng̃a nan Padre* 'says the priest.'

p. 350—In Samaro-Leytean the oblique of the demonstratives may also apparently be preceded by the genitive of the definite article, e. g., *san sadto*; *sa sadto* and *sa sito*, though not given, are practically certain.

p. 358—Samaro-Leytean genitive of the personal interrogative is written *nino*, without glottal catch; Pampangan *kanino* is given as 'supletivo' i. e., oblique, but has been placed in the genitive following the analogy of the other languages.

p. 359—Samaro-Leytean individualizing interrogative is *haen*.

p. 365—Samaro-Leytean *si ako* is not given by Figueroa, but is practically certain.

p. 366—Pampangan *kekatam* is evidently a mistake for *kekatamo*; there being room for another letter between it and the following word in the badly printed copy of Bergaño that was used.

p. 374—Samaro-Leytean *si ikao*, though not given, is practically certain; the Bikol plural forms, which are not given by San Agustín, are taken from Herrejon, *Lecciones de gramática bicol-hispana*, Binondo, 1882.

p. 379—Samaro-Leytean has *kanira* 3. pl. corresponding to *kaniya*; both forms are given by Figueroa as genitive, but have been placed in the oblique following the analogy of the other languages.

In Nabaloi the form *niai* 'of this' is given by Sheerer in the text, p. 128.

The personal pronouns of Bontok Igorot, which were not given in Part I, may be added here, in so far as they are known.

	1st	2nd	3rd
sing.	sakin, ak	sika ; ka	sia, sitodi
pl.	chatako, tako	chakayyo, kayo	chaicha, cha
	chakami, kami		chatodi

Genitive forms of the first person singular and plural are -*k* and *ta* respectively.

Ak, sika, ka, sia, kami, kayo, -*k* and *ta* are to be explained as the identical forms in the other languages. *Sakin* is perhaps *akin* (= Tag. *akin*) with articular *s* (<*si*). *Sitodi* is *si* (=Tag. *si*) + *to* (Tag. dem. root

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[1] Made on the basis of *maminnem.*

part. *to*) + *di* (?). In the plural *cha* is a phonetic modification of *da* as in Nabaloi (cf. p. 333). *Tako* is doubtless inclusive, *kami* exclusive. *Tako* is a combination of *ta* (root part. 1 pers.) + *ko* (perhaps a modified form of *ka*, root part. of 2 pers.), cf. Tag. *tayo,* Pamp. *tamo*, p. 370. *Chatako, chakami,* and *chakayo* are like the Ilok. *datayo, dakami, dakayo* (pp. 372, 378). *Chaicha* and *chatodi* are similar forms made on the basis of *icha* (= Ilok. *ida*), and *todi* of singular.

The following pronouns of Samal, Manobo, Tagakaolo, Bilan, and Atas, languages spoken by pagan tribes in Mindanao, are given in the vocabularies in Montano, *Rapport à M. le ministre de l'instruction publique sur une Mission aux Îles Philippines et en Malasie* (Archives des Missions scientifiques, série 13, tome xi, Paris, 1885).

	Sam.	Man.	Tagak.	Bil.	Atas
def. art.	yan	yan	ang	ni	ang
dem. sg.	ini	iani	ini	ani	ini
dem. pl.	inian	ninian	inian	anian	inian
1 sg.	aco	siacon	aco	agu	siccao
2 sg.	icao	icuna	icao	gufa	siap
3 sg.	iaan	ian	iaan	sanito	sia
1 pl.	kita kami	si kami	karaygan	guictodoon	sikami
2 pl.	kamu	si kamu (*written* kaum)	kamu	?	sikiu
3 pl.	silan	si kandan	kamuyan	guoya	sikandan

In the demonstratives, *ani* and *iani* are probably to be analyzed as *a-ni* and *i-a-ni*, *ni* being root particle, and *a* and *i* articular particles. The plural seems to be indicated by a suffix *an*; *ninian* is perhaps a mistake. In the first person singular *k* has apparently become *g* in Bilan, Manobo *acon* is probably the same as Bisayan *akon*; Atas *siccao* and *siap* (probably a mistake for *siak*) seem to have been interchanged by the author. In the third singular *iaan, ian* are probably combinations of the root particle *ya* and suffix *an*. The forms Manobo *icuna, sikandan* and Atas *sikiu, sikandan* are to be compared with the Bagobo forms; Samal *silan*, with Magindanao *silan*. The forms Tagakaolo *karaygan, kamuyan,* and Bilan *gufa, sanito, guictodoon,* and *guaya* are not clear; *sanito* and *guictodoon* probably contain the root particle *to*; *kamuyan* and *guoya*, the root particle *ya*. The remaining forms require no comment.